

WARP CONNECT

What to expect

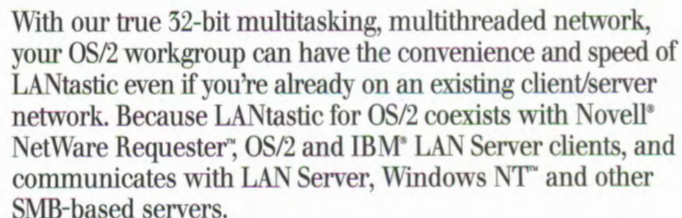
Tips on how to flex
Warp's muscles

Reviews: MetaWare's C/C++
ATS for OS/2
Hands on EZRAID

Q-A: Wally Casey on
Warp Connect

PLUS:
Programming with DSOM
A Wizard's utilities list





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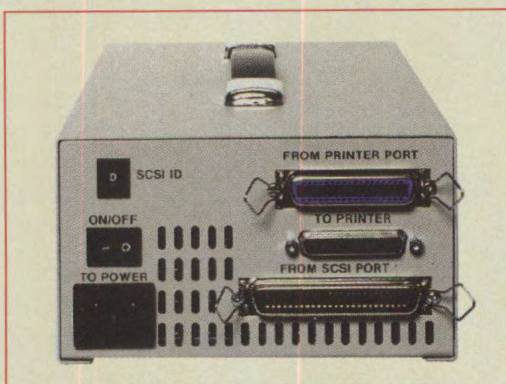
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SPECIAL REPORT

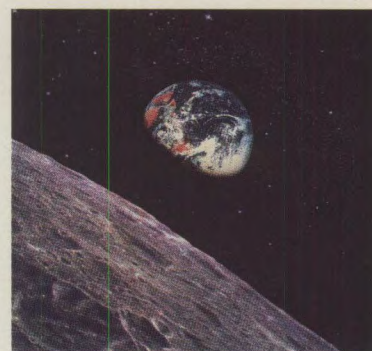
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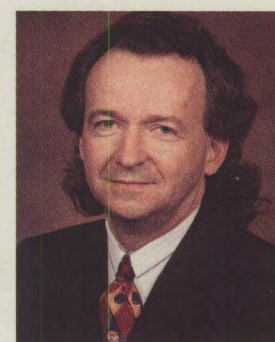
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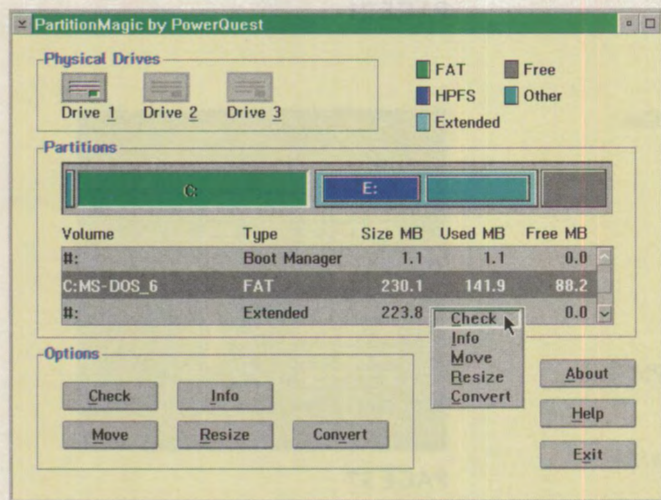
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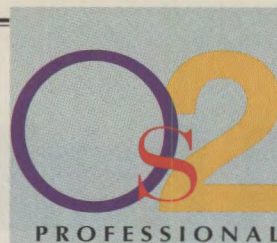
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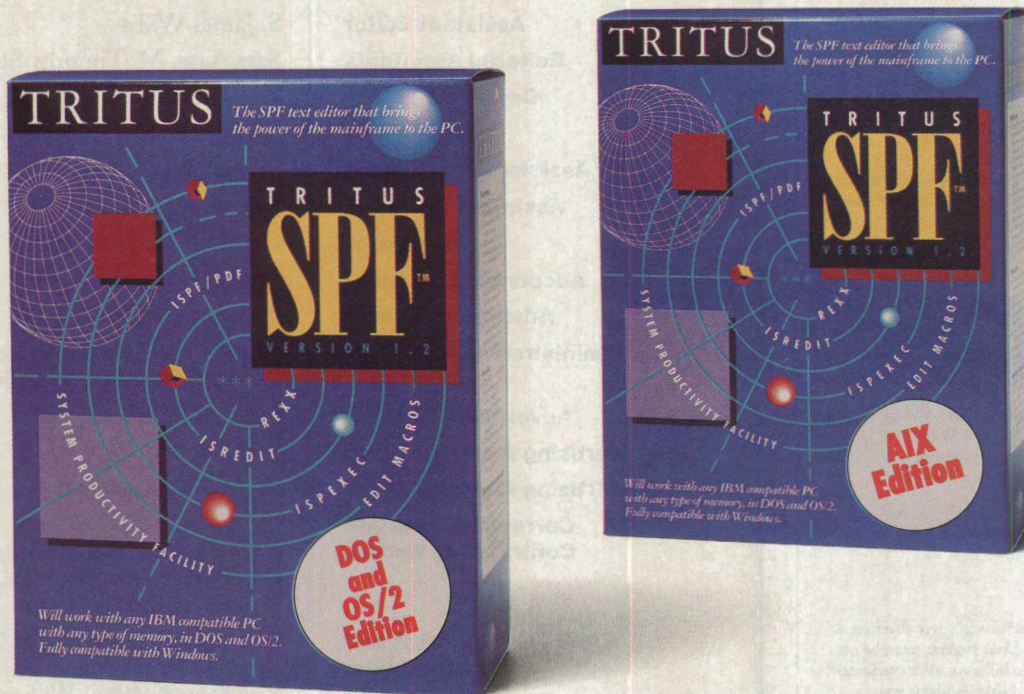
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Dismantle PSP

It is time to dismantle Personal Software Products for the good of IBM, Warp, and those in corporate computing who depend upon both. The arrogance, the continued bungling, the silly marketing, the inability to plan and execute a program, the widespread antagonism toward the press, the almost universal alienation of ISVs—all of this is not helping the product we are all dedicated to.

PSP's functions should be folded into Software Solutions, which would give IBM a single software division. There are many fine people working at PSP. They give up their family life and struggle day and night to selflessly advance the cause of the best personal operating system ever created. Their involvement is indispensable to the success of Warp. But a small cadre in Austin and a few fellow travelers in New York should be relocated to the North Dakota sales office where they can't hurt anyone except perhaps a few stray sheep.

As I write this, it is mid-April. Yet, as the entire publication field knows, Warp has no approved 1995 marketing plan—not even a plan for next month. The OS/2 world and Big Blue too are still stinging over botched TV advertising that spent millions to broadcast an ambiguous product message. By now, the people at Ogilvy & Mather are undoubtedly tearing their hair out, wondering what in creation motivated them to trade in AT&T and Microsoft for what is fundamentally a babysitting job. The people at Lintas, IBM's former advertising agency, were right when one senior executive complained, "We aren't an ad agency. We're a babysitter sitting a baby that changes his mind from hour to hour and from moment to moment."

Word is that some O&M people are now at the breaking point and that the mistakes made were driven completely by IBM over the objections of O&M, including the mistaken notion that Warp was ready for the personal market. Look, O&M is one of the finest, most creative ad agencies in the world. They have proven that time and again. In the right hands O&M can be a powerful marketing weapon. But O&M in the hands of PSP means IBM

shoots itself in the foot. Consider the brilliant O&M campaign conceived with IBM execs in New York to reposition IBM as the world's most precious computer resource, offering Italian Nuns, Moroccan businessmen, French strollers, California surfers, and every other type of earthling to demonstrate that IBM has the solutions needed for a small planet. That campaign is reestablishing IBM as the most powerful name in computers. Compare that to the Pimple People TV campaign and airport wall display campaign that states... well, just turn to page 56. Not now...*after* you finish reading this publisher's memo.

It is hardly advertising and marketing alone. PSP's Baskin-

Robbins approach to Warp naively assumes that retail salesmen and customers will be able to tell the difference between red Warp, blue Warp, green warp, and polka dot Warp. It ain't gonna happen. I know computer reporters at the weeklies who can't keep them straight.

All this comes at a crucial time for Warp. For the first time since I began covering the OS Wars in 1992, a real turning point is occurring in the national mindset. Negative publicity about defects in Win95 (beginning in *InfoWorld* and quickly spreading to national TV), coupled with continued bad vibrations about

Microsoft as a corporate citizen, are making people rethink Win95. If OS/2 can position itself as the reliable up and running product that does what Win95 cannot, then corporate America might believe that staying on track with OS/2 is the correct course. They just might believe that the Win95 they have been waiting for is not the Win95 they will get. But weeks after the adverse news about Win95 hit the airwaves and front pages, PSP is still too paralyzed to spring into action. Another opportunity missed. That's why I believe if IBM is to reclaim the potential of OS/2, it must dismantle PSP before the end of May, making strategic personnel changes. There is not a day to lose if Warp is to compete against Microsoft this fall. ♦

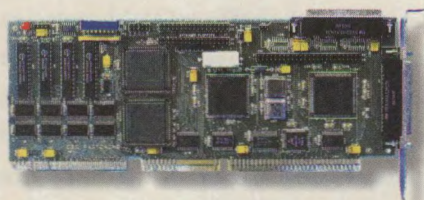
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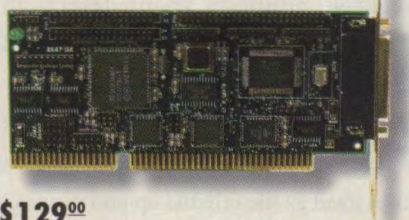
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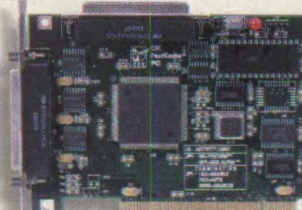
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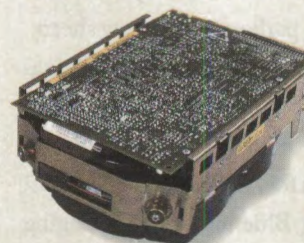
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Comments, criticisms, and observations

Mesa update

Herb Tyson's review of Mesa 2 for OS/2 in *OS/2 Professional* [DOT EXE, February] was very thorough. He pointed out some problems our users had already brought to our attention. And although we weren't able to make your deadline, we have in fact already corrected many of them with a free upgrade.

Many of the faults Herb Tyson found with Mesa have been corrected or improved in the update 2.0.1. Thanks to a dedicated user base and a caring and involved OS/2 community, overall feedback about Mesa 2 has been very positive. Where Mesa 2 does need attention, our users have been generous with their time and comments. In turn, we have tried to react as quickly as possible with free upgrades which address their issues.

We still have a long list of improvements we would like to make to Mesa 2. As a small company we have the benefit of being able to react quickly to market demands and users will continue to receive free upgrades for the next few months.

Thank you for the honest review, and we hope your readers will continue to be as pleased with Mesa's growth and improvement as we have been.

Sarah F. Garnsey

*Athena Design
Boston, Massachusetts*

[See this month's Market News on page 59 for more on the Mesa update.]

BonusPak attack

Now that most of the IBM advertising hype and hoo-ha has died down, I'd like to output some opinions on Warp. First, the BonusPak apps that come with Warp are only barely worth the bits they were shipped in. HyperACCESS and FaxWorks are survivable, barely. IBM should be ashamed of shipping these "bonus" buggy apps. Second, the LaunchPad

would be nice if I really wanted it. But since I don't, it's a pain. Why is it that if I double click on the desktop, the LaunchPad suddenly appears? I don't want it; why can't I make it go away forever? Finally, why must the GUI use so many colors? It's impossible to safely change a system color because if you change text color in one context, it's likely to cause text to become invisible in another context. The system should rely on no more than eight colors.

If IBM really wants OS/2 to catch fire, I'd suggest shipping OS/2 with a good selection of public domain applications and utilities, particularly the GNU stuff (compilers, editors, and utilities). IBM should dedicate people to making sure the BBSs and net sites are crowded with easily downloadable and usable public domain tools.

For goodness sake, somebody in IBM needs to listen and read Jerry Pournelle's columns and get that man up and running and happy. His is the first column I turn to and I'm sure I'm not alone.

I enjoy your magazine very much. Just please don't become a mouthpiece for IBM. The fewer outlets there are for their marketers and spin doctors, the better off everyone will be.

Andrew Burke
Portland, Oregon

Texas-state thanks

As a representative of the Texas A&M OS/2 Users Group, I would like to thank you for the issues of *OS/2 Professional*.

Our group consists of over two dozen students, staff, faculty, and non-university affiliated people with a large variety of backgrounds. While a few members of the group program or use their machines to "play games," most of the members use OS/2 as a stable environment for Internet access, research, and school projects. The stability and dependability of OS/2 seems to out-

weigh everything else (a crash can cost a grade, a degree, or a grant).

The main reason our group exists is to show other people "what's out there" in terms of OS/2 software, hardware compatibility, and as a question/answer resource for problems and general inquiries. We would like to thank you for helping to support our efforts.

Neal Krawetz
via the Internet

Good with the bad

As a reader/subscriber of your magazine there is a lot about it that I like. The columnists are good and much of the information is unlike that found in most other magazines. However, something disturbs me when I read your magazine. After reading certain material in *OS/2 Professional* I feel like I've made a mistake investing in OS/2. I really like this operating system, but somehow reading this stuff gives me the impression that it is doomed and I'm wasting my time.

M. Morrow
via the Internet

Tolerant tastes

I can't believe *OS/2 Professional* censored an ad because it contained pictures of a woman in a swimsuit. She wasn't even naked. I didn't know that swimsuits have become immoral too.

Most of all, you guys seem to be proud of doing this by printing a long explanation about it. Instead of being ashamed and hoping that none of your readers discovered this silly act, you write as if you want people to congratulate you for your moralistic views.

No wonder Europeans laugh at us. They are much more tolerant than most Americans are and don't seem to suffer any serious damage from their tolerance.

Andre Kuehnemund
via CompuServe ♦



"Hey, have you heard about TechBridge Builder? Boy, does it ever cook!"

At TechBridge Technology, we understand the way application developers work. You have users, requirements, and deadlines. You need a tool that allows you to use your existing skills and data to develop industrial-strength applications quickly and easily. So we developed TechBridge Builder for OS/2, a visual programming tool that accelerates the development of both graphical and object-oriented applications.

"TechBridge Builder...does make development of Presentation Manager business data applications more easy and straightforward than conventional high-level languages."
OS/2 Magazine, April 1995

Making the most of your time

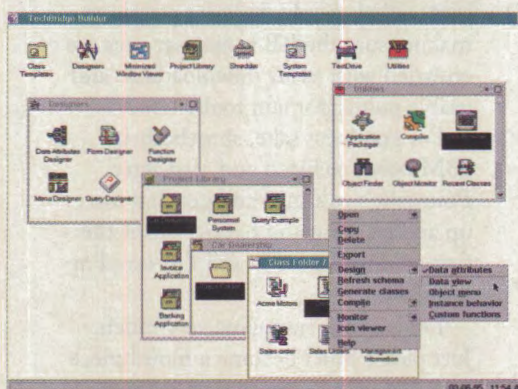
With TechBridge Builder, you focus on meeting business requirements, while our framework of over 700 classes, objects, and templates takes care of lower-level programming details. You can add your own custom code, select from predefined functions, or even allow TechBridge Builder to automatically generate the application from existing database definitions.

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Computer World Canada, March 10, 1995

Making objects work for you

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Computing Canada, February 15, 1995

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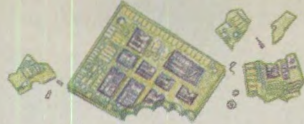
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BYTES & PIECES

News and trivialities, important and obscure

OS/2 World

Most readers in the know have already booked passage to Boston's Hynes Convention Center where, from July 17-20, the second annual OS/2 World Conference & Exhibition will take place. The show is sponsored by *OS/2 Magazine* and is one of the leading OS/2 events. Some 1,500 industry watchers and players are expected to participate in workshops, lectures, and forums. Scheduled keynote speakers include IBM Senior Vice President and General Manager John W. Thompson, and Canopus Research President William F. Zachmann.

Publishing 101

While in Boston, you may just learn that it's one thing to write good code, and quite another to write clear, marketable prose. In an effort to bridge this gap, IBM's Independent Vendor League (IVL) is sponsoring a free OS/2 World seminar for prospective authors interested in publishing books about OS/2 and other IBM personal software products. The three-hour session will walk participants through each step of the publishing process, from query letters to royalties.

A panel of experts will be on hand to explain just what publishers are looking for today. They will also introduce would-be authors to IBM's IVL support programs, and will take questions as they come. The panel includes IVL Program Manager Gail Ostrow, OS/2 author and editor Dick Conklin, and Diane Littwin, creator of Van Nostrand Reinhold's best-selling OS/2 book series. If you are considering writing a book for this growing market, here's an opportunity to learn from the experts.

The publishing seminar will be held



during the OS/2 World Conference & Exhibition, on Wednesday, July 19, 1995.

For more information about the seminar, e-mail gailo@vnet.ibm.com, or call (203) 384-9996. OS/2 World course catalogs are also available: e-mail OS2@MFI.COM, phone (415) 905-2354, or fax (415) 905-2220.

Cyberhunt

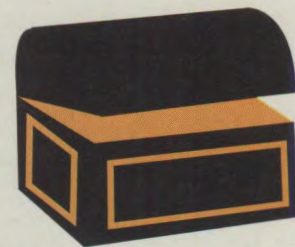
In the vein of *Where's Waldo*, TRACER Design this month kicks off a large-scale World Wide Web-based treasure hunt meant to separate the hack from the seasoned Internet user. Designed to test and increase each participant's ability to locate specific bits of information on the Internet, Cyberhunt, the game, centers around Vincent, a computer scientist trapped in what writer William Gibson once described as a world of "consensual hallucination," or cyberspace. The goal, of course, is to "rescue" Vincent.

To play, users must first register, exchanging e-mail addresses for passwords. Then they are given access to the first clue, a piece of information that must be solved before moving on. Contest co-sponsor TRACER Design, an ad agency in Phoenix, Arizona, will reward the first 40 individuals able to identify sites on the Internet visited by Vincent. Prizes include copies of OS/2 Warp, AT&T Multimedia packages, and me² self-help software. And to the person who "finds" Vincent first? An IBM Thinkpad 755C.

"In playing the game you'll learn everything there is to know about searching the Internet. It forces users to go outside their own computer and learn the sites," says Chad Little, president of TRACER Design, and Cyberhunt creator.

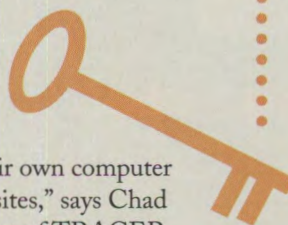
Along the way, players will also encounter sponsor-related icons

or virtual ads promoting everything from computer software to communications services. Even users with no interest in finding Vincent, Little hopes, will learn navigation techniques by accessing the game's help topic on Cyberhunt's home page. But if it's clues you want, a \$5 membership fee will grant you extra access and the knowledge that part of your fee goes to Computers for Kids, a non-profit organization that provides computer equipment to schools. Eager to join the hunt, or just curious, point your browser to <http://www.cyberhunt.com>.



People are talking

A new mail application has been making the rounds, receiving, for the most part, rave reviews. And while it's technically shareware, seasoned users report high levels of satisfaction. PM Mail is a no-nonsense mail client geared toward users running OS/2's TCP/IP software. It's been so well received, in fact, that some users have replaced their existing UltiMail applications with unregistered trial versions of PM Mail. Indeed, a quick look at various electronic OS/2 haunts reveals that word of this piece of shareware is spreading. "After using PM Mail for two hours," one enthusiast gushed, "I wrote my \$30 registration check and promptly mailed it off." If you're in the market for something new, PM Mail may be worth a look. It may feel like a beta, but it works just fine as-is. FTP to hobbes.nmsu.edu and look in the [os2/network/tcpip](ftp://hobbes.nmsu.edu/os2/network/tcpip) directory for the file called [pmmail10.zip](ftp://hobbes.nmsu.edu/os2/network/tcpip/pmmail10.zip). ●



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A Tour d'Desktop

BY BRADLEY D. KLIEWER

We have often said that while lacking in native support for major applications, OS/2 has several useful utilities. Some of these utilities, while quite handy, are simply too minor for a full-fledged review. Others have been reviewed in the past, withstood the test of time, and remain on our systems. With that background in mind, I'd like to lead a brief tour of the utilities on my system.

The first stop is the GammaTech Utilities, which provide one invaluable utility: undelete for HPFS file partitions. Undelete is a bit awkward to use because it scans the entire disk—a time consuming process on a large drive—but it's quicker and more current than restoring from tape.

On the tape backup front, I've been waffling between BackupWiz and a new product called BackAgain/2 Pro. Both support SCSI devices and logical drives and provide excellent data throughput. BackupWiz uses a character-mode interface while BackAgain/2 has the most user-friendly GUI I've yet seen in a backup program.

Both can be configured to restore from a diskette boot if your hard disk fails completely; and both have minor problems that prevent me from endorsing one over the other. BackupWiz has an awkward restore procedure: you must name the file rather than use a point and click method. It also lacks an integrated scheduler. BackAgain/2 has an integrated scheduler, but a scheduled backup cannot erase or overwrite a tape. Every time the tape gets full (about once per week on my system) I must manually erase the tape. Both vendors plan to address these problems in their next releases.

Another problem we have not completely isolated yet: when running BackupWiz on our server, the backup process sometimes halts when we receive a FAX over the LAN version of FaxWorks (a problem that has diminished since we upgraded LAN Server from version 3.0 to 4.0). Despite this, FaxWorks has been a wonderful boon in its network incarnation. Now that DeScribe supports direct drag and drop of an open document to the fax print-

er icon on my LaunchPad, I'm really beginning to admire this pair of programs.

A recent addition to my Desktop, XFolder, has improved my layout. It simply arranges the icons in a folder by any one of four standard styles: rows, columns, rectangle, or perimeter. The latter is particularly useful for configuring the Desktop (to keep icons toward the edges where they're easy to find when several windows are open). Even more useful is the align function. It helps you move your icons into neat rows or columns once you've manually placed

the icons into your desired configuration. XFolder can also undo an arrangement, so long as you made the changes through XFolder's functions.

The next time I need a "picture" of my Desktop, maybe I won't be so embarrassed by its disorganized appearance. The "camera" I use for illustrating manuals or creating figures for the magazine is OpenShutter. It saves to a number of different file formats, including the near-universal PCX and TIFF formats.

My system also includes a couple of "hidden" utilities that improve file access. The first, EZRAID, is the subject of the Hands On column in this issue (page 41).

Suffice it to say that EZRAID improves disk performance and prevents lost data due to drive failure. Indeed, after Hands On went to typesetting, one of the drives in my personal array failed. It corrupted the SCSI bus and hung the system, but I didn't lose a single byte of data.

The second hidden utility, CorelSCSI, provides access to my Magneto Optical drive. Unfortunately, CorelSCSI supports only FAT formatting (I'd prefer HPFS on a 1.3 GB platter) and could use some SOM integration (to add Eject to the drive object pop-up menu), but at least I can use the drive. I've been told that using 512 bytes per sector media (as opposed to my current disk, which uses 1024) will bypass the need for CorelSCSI, so maybe I'll shift strategies in the future.

A newcomer to the scene, Partition Magic, has already turned



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Network Sales: 1-800-329-9675
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DeScribe
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Naples, FL 33962
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XFolder

Desktop Company
1404 Durwood Drive
Reading, PA 19609
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Open Shutter

One Up Corporation
1603 LBJ Freeway, Suite 200
Dallas, TX 75234
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List Price: \$69.95

EZRAID 2.01

Cyrnex Corporation
1145 Hunt Club Road
Ottawa, ON
Canada K1V 0Y3
(613) 738-3864; fax: (613) 738-3871
List Price: US \$795

CorelSCSI 2.04

Corel Corporation
1600 Carling Avenue
Ottawa, ON
Canada K1Z 8R7
1-800-772-6735 U.S.
1-800-394-3729 Canada
List Price: US \$129, plus \$15 shipping

Partition Magic

Power Quest Corporation
1380 West Center
Orem, UT 84075
(801) 226-8977; fax: (801) 226-8941
List Price: \$129.95

heads around the office. This utility can resize partitions (handy since we originally sized our boot partitions for OS/2 2.1, which were smaller than Warp's). Better yet, it converts FAT-formatted partitions to HPFS. We've used the conversion feature to migrate one of our original systems and a preloaded Ambra. Partition Magic converted a nearly full 350 MB drive from FAT to HPFS in a little under two minutes. It also reclaimed about 40 MB of wasted space—HPFS' smaller cluster sizes store files more efficiently on large drives.

Overall, I'm pleased with my Desktop. I could make further minor improvements, such as adding a more robust file manager (if I can find one to my liking). While Warp alone provides an excellent work environment, a few key utilities definitely enhance my day at the office. ♦



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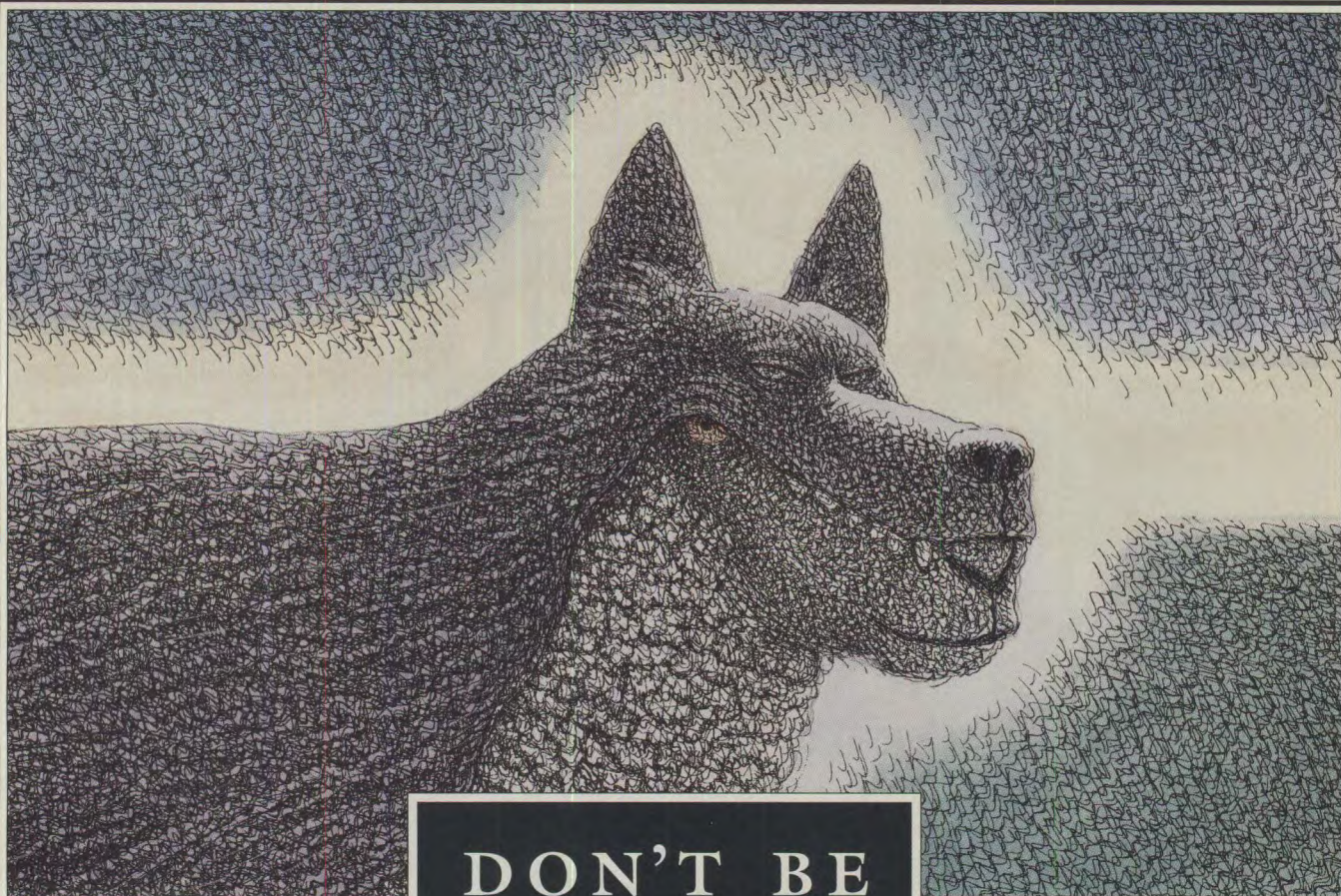
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SPECIAL REPORT

Warp Connect

...It's not rocket science

BY BRADLEY D. KLIEWER





It's not exactly rocket science. Take an operating system with features tailored toward a corporate audience, add software designed for networking and roll them into one easy-to-install package. That's what IBM's done with the latest flavor of OS/2: Warp Connect. If there's any surprise in store for Warp Connect users, it's that IBM is taking so long to get this bundle on the shelves. After all, most of the changes are not particularly radical. Although Warp Connect includes a stellar new peer product and several programs that were once bundled separately (such as TCP/IP and the LAN Distance client), this is substantially the same Warp and LAN Requester 4.0 for OS/2 that has been shipping since November.

In fact, with five months of market experience and a growing bandwagon of third-party device support, I would have expected wider device selection options. For example, why must I still use a vendor's proprietary diskette to install network adapter support for Madge Smart Ringnode and Proteon ProNet token ring adapters? Both vendors have supported OS/2 since at least version 2.1 and their drivers worked unaltered with Warp. Granted, the version of Warp Connect we tested was still in beta. However, if IBM were to stick with a mid-May release, this beta would have less than a month of tweaking left (assuming Connect goes gold approximately two weeks before availability).

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The install program itself ran into a few bumps along the way. For example, an Advanced install over an existing copy of Warp required three reboot cycles (as opposed to the one typically used for plain Warp) and a few of the progress indicators actually grew shorter during portions of the install. The latter, at least, is simply a cosmetic problem that will surely disappear in the gold code.

enough on the downside. The upside is that Warp Connect is significantly simpler to install than Warp plus LAN Requester 4.0. When we installed to an unpartitioned drive using the Easy install, Warp Connect went through a very easy to understand (and cosmetically appealing) series of prompts. Although it didn't recognize the Madge Ring-node adapter, it did provide a chance to load the drivers from diskette—a process that proceeded flawlessly. Even the quirks that appeared in the Advanced install proved more annoying than problematic, and both machines ran perfectly after the install process finished.

Installation Should Get Even Easier

The new installation program will be a boon to network administrators using CID (Configuration Installation and Distribution)—a LAN Server-based utility that installs OS/2 Warp and other CID-enabled applications directly over the network. Configuring CID can be an awkward and time-consuming process (see *Enhancing CID with REXX* in the July 1994 issue). In previous versions of OS/2, the operating system and LAN Requester configuration involved multiple boot cycles and response files. In our offices, we typically installed OS/2 via CID and then loaded the Requester via diskette: the two or three diskettes required for a custom requester install made for a relatively quick process. If all of the Warp Connect components can be combined into a single response file, it would be worthwhile to install the entire system via CID.

However, the beta version contained the same response file that ships with Warp and the Warp Fullpack. Although not yet completed at presstime, a senior technical official working on the project said IBM will be making the same install program that works locally (off CD-ROM) to run over the network. That should end the crazy-quilt install processes that made CID so difficult to configure and also allow response-file driven install right off CD-ROM. IBM continues to refine the sniffer so that the gold code will detect and install many more LAN adapters than

LAN Requester 4.0 or the current beta. The install program will then ask all questions (and prompt for default overrides) at the very beginning of the process. After the first reboot, required to switch into GUI mode, the install will run without further intervention. Any further boot sequences will occur automatically (with a message that lets the user know what's happening).

It's difficult to believe IBM can pull this all together in time for a mid-May release (which is already behind the late April to early May target originally planned). Indeed, in discussing the original target date, we were told that Warp Connect will not ship until it's reliable even if that ship date occurs later than mid-May. While the delay between the original Warp release and availability of Warp Connect has been disappointing, it's important that IBM make this install program run as flawlessly as possible, particularly because...

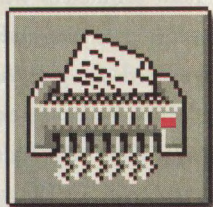
...IBM Finally Got It Right!

By far the most impressive piece of the Warp Connect package is the new peer service. OS/2 Peer, which is actually an extension of LAN Requester, cross-connects with the most popular PC-based networks around: IBM LAN Server, Microsoft Windows for Workgroups, Microsoft NT Server, and Artisoft LANtastic. And like LAN Requester, OS/2 Peer can access resources on a Novell NetWare server.

best of all, defining peer resources and access rights follows the same easy-to-use paradigm found in the LAN Server Administrator program (see the March 1995 cover story, *LAN's Best Friend*). A small business or department investing in Warp Connect for its peer services will protect investment as it scales up to ever larger systems such as LAN Server Entry and LAN Server Advanced. An upward move requires no additional workstation license fees and little additional expertise. Best of all, IBM does not lock the user into a LAN Server path—the option to migrate to a Microsoft, Novell, or Artisoft system remains open. That strategy seems to be honing a fine competitive edge on IBM's LAN products and is a refreshing change from the closed technology policy of old.

As a cross-platform check, we tested connections with Windows NT. Although the documentation and release announcements state that Warp Connect resources will be browsable by NT, we were unable to see the resources prior to establishing the connection. However, once the connection was established, NT

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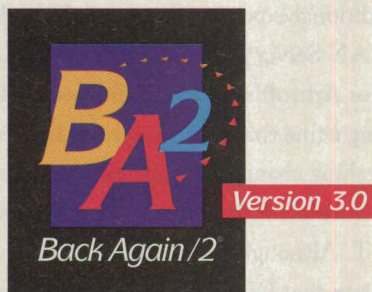
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SPECIAL REPORT

and Warp Connect were able to access each others' resources. An IBM official confirmed that the browsing feature was not completed in time for the beta, but said the final version will indeed work as originally announced.

Cautiously Optimistic

Warp Connect is absolutely the right product, if not quite at the right time. An earlier release certainly would have given IBM a marketing edge. Yet surprisingly, the beta still needs more maturity. Another beta round would be welcome, although it would doubtless further delay the final release.

On the balance, however, IBM needs a really clean, easy to install version of Warp. Indeed, another snafu like the install glitch that forced last-minute changes in the original Warp release could do far more harm than a delayed release. ●



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Q & A

A straight-talk interview on topics of professional concern



CONNECTING WITH CASEY

BY
EDWIN BLACK
AND BRADLEY KLIEWER

The latest and—for corporate America—the most feature rich version of Warp thus far is releasing: Warp Connect. In an interview conducted just as the product was about to go to gold master, IBM PSP Director of Marketing Wally Casey answers some rather blunt questions on how Warp Connect fits into IBM's strategy for proliferating Warp throughout the connected community.

BLACK AND KLIEWER: Aren't the many flavors of Warp—vanilla, Fullpack, Upgrade, and now Warp Connect—confusing the marketplace? Connect seems to be the superior product, but coming out just a month or two after the Fullpack, won't it cannibalize sales of Warp Blue?

CASEY: We don't think so. Our customers did not want to buy software from different parts of the IBM company and assemble it themselves. They wanted us to do the assembly and integration. Then they can move on to their real business.

Remember, there's only one release of Warp—one code base. But there are packaging options for specific marketplaces and differing customers.

Why the delays on a product clearly aimed at Warp's strongest market—corporate? Fullpack took an extra two months, and Warp Connect four more.

That's a pretty good question. Products and technology mature at different rates. First and foremost, we had to make sure that those seven million customers who had been with us since the beginning of the journey in 2.0 in fact were able to upgrade their existing systems. This class of customers, a relatively sizeable class, only wants to upgrade their operating system. They're very happy with the existing requester service and all the other pieces that go with it. The only thing they want to do is upgrade the base operating system. For them, obviously, Warp Fullpack was the vehicle to do that.

Connect addresses the large accounts but it also addresses a new class of customers that we have not traditionally reached—small and medium-size businesses or autonomous departments of large companies for whom assembling all those individual components was too challenging a task. Now we put all of that

Q & A

functionality and those features in one box.

We're hearing a lot about customers who ask why get the Fullpack today? OS/2 Professional perhaps is a typical small company on a LAN serving 2.1 stations. We have decided to bypass the Fullpack and upgrade to Connect.

For your company, that's the right choice. If you're able to wait then fine. We have tried to offer customers choices, so a high percentage of Fullpack customers may decide that in fact Connect is the product they want. In fact, I think you're going to see a pretty aggressive switch here in the next month or so to Connect as the preferred vehicle. Fullpack will probably begin to lessen in volume and Connect will become the high volume platform.

Hasn't there, in fact, been a great deal of disagreement within your organization about the confusing packaging of Warp and its many flavors?

No. As a matter of fact, from day one, the excitement has been how fast can we get Connect done. We've been talking about a family of products. So, I mean, we really think we're very capable of explaining what the differences are here.

Novell Requester and LAN Server Requester have worked with Warp for some time now. Connect adds peer, but have there been further refinements, particularly in the Novell requester code for the Warp Connect packaging?

Refinements? We put the package together in such a way that the average Joe Blow can actually create a small-to-very-large local area network. By extension, as we provide service, we move forward with future enhancements which are tested and upgraded.

So a major purpose of Connect is simply to provide an easier install?

Dramatically. I think that's pretty simple.

What's next in the Warp family?

You know, we're pretty anxious about OS/2 Warp for PowerPC. We're on target for delivering that this summer and demonstrated it at Cebit. I think you'll start seeing us move up the path from Warp to the Connect version to OS/2 Warp for PowerPC.

So, what is the next version of Warp—SMP or PowerPC?

Which one pops out of testing first? I can't answer.

In your original announcement, you talked about a server or green-spined version. Will that still be a part of the product line?

We want to provide the server complement to all the features provided in Connect. So we've talked about building a Warp server for delivery sometime in this year.

Is it true that the PowerPC hardware will ship before Warp for the PowerPC is ready?

I'm responsible for building the software and the strategy that goes with that. Power Personal will make the decision about hardware dates. We already have a beta that's been out for some time. We're about to put another beta out. If somebody wants to run OS/2 Warp for PowerPC on Power PCs, they've got an avenue to do that.

What about NT? If the hardware ships first, will NT for the PowerPC beat OS/2 to the market?

I don't know. I'm not responsible for the NT development aspect, just the OS/2 version.

Aren't you responsible for knowing what the competition is doing?

I'm very responsible for what they do. However, I'm not responsible for their delivery plans.

Aren't you concerned about who gets market entry?

I work on OS/2 Warp for PowerPC. There's another group who works on NT. We really don't see NT as that big a competitor yet, quite frankly. We think NT will have a niche market in this high-end workstation marketplace for a while but it really isn't a PC-based operating system.

In addition to any enhancements you made to the network functions, have you implemented fixes to the base Warp code?

Yes, we always do that. There were features and functions fixed when we shipped Fullpack, such as install features, that your magazine and others have covered pretty well. In Connect, we enhanced the base code so the network folder management could work as seamlessly as humanly possible with all the different aspects of connections, with NetWare, Windows for Workgroups, NT, LAN Server, and other OS/2 peers. Those fixes are also made available to existing customers via bulletin boards and other methods.

Connect and its peer features are ideal for the small and growing business. Until now, your advertising has been geared toward the consumer rather than the more appropriate SOHO user. What are you doing to target your ad content and placement to reach the entrepreneurial market—in such magazines as say *Entrepreneur* and *Fortune*?

Q & A

I think that's a good point. As you know, the majority of our merchandising and advertising has been directed towards the stand-alone. You'll notice a shift in ad placement to those you have described as likely candidates and in non-trade journals. For example, in *Fortune*, where we've talked about Warp as more of an enduser application, we'll shift those messages to much more of a connected small business or rightly any business-to-business environment.

How will you talk to small business people in non-technical terms about their technology? Who in Austin possesses the mindset to properly understand the non-technical user?

We think we do. We didn't just receive this idea in the mail. We actually kind of came upon that ourselves. That's why we tried to get the peer-to-peer install foolproof and we tested it on people who we believe represent that set or class of people you're talking about. Our experience has been very good so far. We actually hired a consultant who has been on a number of the small business councils for the government. He helps us understand these small business users, whether dry cleaners or whatever. It's not surprising that the group crosses the gender gap and is from a younger set. However, a more mature set is equally aware. They may not be as aggressive but they come in, use it, and once they feel comfortable with it they become aggressive in deploying it.

Which form of Warp will be preloaded via Select-A-System and on Butterflies?

It will be a kind of platform-by-platform decision. The Butterfly will be phenomenal. It has infrared built into it, so it is designed for a connected environment. Even still, I think probably only a small percentage of people use that type of environment.

What about the Aptiva and Connect? The Aptiva doesn't ship with a network card.

That's exactly right. It doesn't. Quite frankly, we're not closed on the plan yet. You can certainly tell your readers we're having discussions with major preloading OEMs. I wouldn't want to jump the gun. Don't forget, as we speak in April, Connect still has not gone to masters yet.

Press reports say fundamental design flaws may result in a crippled Win95. Are you geared up to position OS/2 and ready to make the most of this opportunity?

Customers are not generally pleased with this kind of friction because it causes them all kinds of problems. You don't want to say, oh, I think Windows 95 is going to stumble, or Windows 95 is going to have a defect. I think you have to have a strategic plan

to win and be poised and ready on the off chance that Microsoft does make itself vulnerable, as it appears to be doing.

Well, are you?

Unequivocally, yes.

Are you going after the guys developing for Windows 95?

We have the single most aggressive campaign IBM has ever run to lure or attract software developers to its OS/2 platform: for example, the Corel decision to bring its entire Office Suite over to OS/2 by the end of the summer...and MacroMedia's decision to bring Director over so that games and other multimedia titles can be very quickly brought to the OS/2 platform.

And this is why you believe Warp Connect is a major part of IBM's strategy to compete against Windows 95 this fall.


Absolutely.

Thank you, Mr. Casey. ♦

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OS/2

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Computer Data Strategies
Purchase any OS/2 WARP package and receive Back Again/2 Personal at this special price.

WinGrate \$10.00 Warp add-on \$5.00

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DK Micro
Already bought Warp, but want Full Pack functionality? WinGrate migrates your WIN-OS/2 environment to a format compatible with Microsoft Windows and prepares your system for Warp installation. All you need to upgrade OS/2 2.1 (Borg) are copies of OS/2 Warp version 3, Microsoft Windows 3.1 or 3.11, and WinGrate.

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Back Again/2 3.0 Personal edition has all the features of our Professional edition without the support for SCSI tape drives. Back Again/2 Personal is the perfect solution for backup to floppy disk, magneto optical, and LANs. Includes drag-and-drop support, scheduling, and command line utilities so you can completely restore your OS/2 partition.

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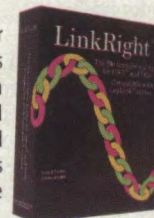
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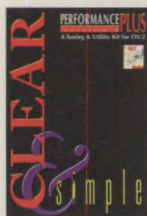
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Cirrus

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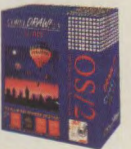


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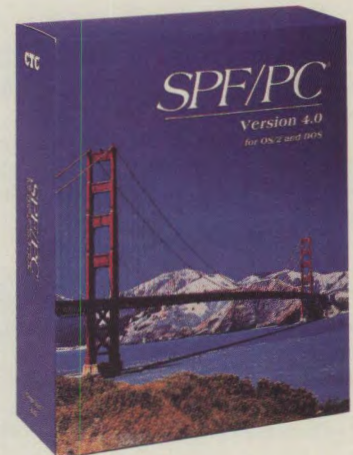
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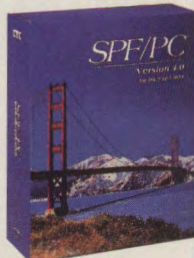
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IS International
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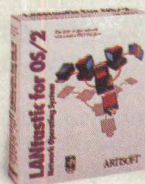
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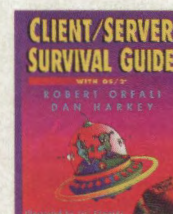
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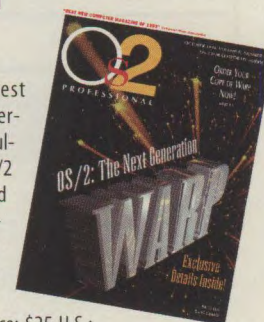
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EZRAID Pro 2.01 allows users to capitalize on falling hard disk prices by connecting multiple physical drives into a single logical drive.

BY BRADLEY KIEWER

I'm hooked on RAID. Specifically, Cyranex Corporation's EZRAID Pro 2.01. My addiction is affected not so much by the software, which is a fine piece of work, but by the hardware. Hard disk real estate is now cheap and prevalent. I just bought three one-half-gig Quantum Maverick drives for my home system for just over \$200 each (and the way disk prices keep dropping, they may well be below \$200 by the time you read this). Those three drives combined with EZRAID give me a full gig of disk space and assurance that I will not lose valuable data because of a drive failure.

EZRAID works by combining several physical drives into a single logical drive using one of several strategies. You select the method based on the number of drives you have and the level of risk you're willing to endure. The riskiest level is drive spanning: concatenating all physical drives into one logical volume. If one drive goes down, your data's toast. The more drives you add, the greater the risk. The safest strategy, disk mirroring or RAID Level 1, writes identical information to two drives. If one drive fails, the good drive continues working without the security of a backup (until you replace the bad drive). Mirroring is the only option that works with the boot drive and is the most expensive data protection (in terms of hardware cost) you can buy.

In between the security of Level 1 and the risk of spanning lies RAID Level 5 (EZRAID also supports Level 4, which was originally proposed as a theoretical construct for understanding Level 5 rather than as a practical implementation). In this configuration, the logical drive combines the capacity of every drive less one. Thus, my home array with three half-gig drives provides one gig of data, with one-half gig reserved for error correction data. I could add capacity, one half-gig at a time, by installing additional drives. In fact, we used this very approach to build larger RAID's for our network servers: a two-gig array with four one-gig drives and a four-gig array with six one-gig drives built from a mix of Quantum Empire and Maverick drives.

"Hold on," you may say if you're an alert reader, "the total capacity is one drive too small!" Indeed it is—EZRAID provides yet another feature called hot standby. With hot standby, one drive in the array remains totally unused. If one drive fails, EZRAID immediately begins reconstructing the lost data on the standby drive. This minimizes the chance that you will lose a second drive (and all of your data with it) while waiting to replace the bad drive.

We tested all of these Level 5 failure modes and features by unceremoniously yanking the SCSI connector off a drive while the system was in use. OS/2 continued to run smoothly with one drive out when no standby was available and during the rebuild with a standby installed. When a problem occurs, EZRAID pops up a warning message. When installed on a network, EZRAID can route the message to another screen through your network messaging feature. Or, EZRAID's warning can activate a pro-

AT A GLANCE

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HANDS ON

gram of your choosing (for special operations such as signalling a pager). These options are a welcome addition to version 2.0.

Another important new feature allows operation of OS/2's FDISK. In normal operation, EZRAID overrides FDISK. EZRAID uses a proprietary partitioning method, so disabling FDISK acts as a safety measure that prevents a user from unintentionally repartitioning a RAID drive. However, EZRAID's drive-configuration software is not as agile as FDISK when installing Boot Manager and/or multiple primary partitions. If you manage multiple partitions, all it takes is a command line switch in CONFIG.SYS to enable FDISK.

Compared to its predecessor, we found that a RAID 5 array managed by EZRAID 2.0 was about 6 percent faster for random writes, 20 percent faster for random reads, and a few percentage points faster on sequential access. With sequential reads, performance was about 20 percent slower than a standalone 2 GB Seagate Barracuda when run as a single task on large files (over 8 MB)—not bad when you consider that on a single-drive basis the Barracuda responds about 18 percent faster random access and runs at 33 percent higher RPM (giving correspondingly higher sequential access throughput). In overall read performance EZRAID and the Barracuda generally ran neck and neck when disk benchmarks were multitasked, demonstrating that EZRAID is optimized for a multitasking/multithreaded environment. Even better was performance on files in the 2 to 4 MB range where EZRAID outpaced the Barracuda by 100 percent or more.

Random access write performance suffers significant degradation in a RAID 5 array due to the nature of the data format. Unlike standard or mirrored drives, RAID 5 must read existing data before writing new data in order to calculate the error-checking data. This led to a 200 percent degradation in random write performance compared to the standalone drive. In theory, the read-before-write cycle would similarly affect sequential write performance. However, strategic caching can eliminate much of the overhead. EZRAID narrowed the gap to a 100 percent penalty in this scenario (taking twice as long to write an 8 GB data file).

Fortunately, most applications rarely perform truly random writes. Sequential access tends to predominate on systems that access large files: word processing documents, spreadsheets, and graphic images. The most common random access applications (databases) typically perform many more reads than writes and will often write large sections of records. Thus, barring special requirements such as real-time data collection and logging,

For more information circle #7

HANDS ON

EZRAID's level 5 format provides the best general-purpose configuration.

The only aspect of building your own RAID where I would advise some caution is in the physical implementation. First, although EZRAID supports any mix of drive formats, you really should use SCSI for the most flexibility. Furthermore, if your RAID (or SCSI bus) will support more than three or four devices, you should pay special attention to the characteristics of the cabling and termination. Several of our older Quantum drives would not work on the array until we physically removed the terminating resistors (despite removing a jumper that was supposed to disable termination). These resistor packs, typical of older drives, are called passive terminators. Newer drives, such as the Quantum Mavericks, provide active terminators that better adapt to the line characteristics.

On another system, a NEC Multispin 3Xe CD-ROM's internal termination did not properly condition the line and caused two of the RAID's disks to get out of sync. Losing one drive is not a problem, but with two, you're out. Disabling the CD-ROM's internal terminator and adding a SCSIVue active terminator to the drives port solved the problem. Additionally, the SCSIVue terminator includes diagnostic LEDs that can help you track down problems on the SCSI bus. If you are using external devices, you might also want to consider using a well-shielded cable with an EMI/RF choke similar to the SCSIVue cables we tested.

EZRAID also supports a feature called "hot swap" that lets you remove and replace a drive while the system is running. This is yet another area where we would suggest a conservative design approach. Many vendors now market cabinets specifically designed for RAID's. We opted for a standard cabinet on ours. In an ill-fated test, we attempted to swap a drive, the power connector sparked and down came the system (a properly designed cabinet should allow for clean disconnection of power and signal). Because our RAID's are not running in a round-the-clock environment, we can afford to down the server after hours and a hot standby offers adequate protection. If your environment is more demanding, don't skimp on the cabinet.

The Quantum Maverick and Seagate Barracuda drives, like many newer designs, provide termination power. At least one device on the bus must provide termination power (in a PC system, the adapter card itself usually acts as a source). Additional power sources provide redundancy and ensure adequate voltage regulation on a long device chain.

continued on page 70

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KOGAN'S KORNER

OS/2's Driver Dilemma

BY MICHAEL S. KOGAN

Today's OS/2 Warp uses a 16-bit physical device driver model derived from the bimodal-architecture days of OS/2 1.X. Although at first glance this may seem strange for a 32-bit operating system in its third release, one must look to OS/2's design history to fully comprehend why, and what is being done about it. Generally, 32-bit code improves performance over 16-bit code only when used to process data larger than 64KB, or when performing 32-bit integer arithmetic. Otherwise, 32-bits brings portability and, potentially, memory problems.

When OS/2 2.0 was being developed, IBM's policy was to use 32-bit code whenever system performance would be improved, while providing portability and performance for applications and dynamic link libraries. As a result, most of the OS/2 kernel and system DLLs were moved to 32-bits. However, the physical device drivers and file systems were left as 16-bit code because their performance is limited by the speed of devices rather than the processor.

At the time, it was decided that a 32-bit OS/2 physical device driver model could be postponed until a subsequent release, and that the growing installed base of OS/2 1.3 device drivers could be leveraged for the first release, in spite of their known shortcomings.

For their part, 16-bit device drivers suffer from the pains of 16-bit segmentation and interfaces targeted at the 80286 assembler programmer. Development in C is difficult due to a lack of standard tools and register-based parameter passing in the interfaces. Also, today's driver writer using C must use old compilers (i.e., Microsoft C5 or C6), debug incomplete interface libraries, and be aware of the nuances of the segmented driver model. Essentially, the compiler is used as an advanced assembler.

What 32-bit device driver model makes the most sense for OS/2? Simply put, one that makes it easy for IHVs and OEMs to migrate their 16-bit OS/2 drivers. These developers want a portable 32-bit flat programming model with no 64KB restrictions,

and dynamically linked drivers that support reconfiguration without rebooting the system. They'd also like DevHelp interfaces that are the same or similar to today's interfaces, as well as consistent calling conventions accessible from C or C++. Stable development tools using today's OS/2 compilers are also high on their lists.

Indeed OEM and IHV developers have pondered the same question for years; whatever happened to a 32-bit device driver model for OS/2 on x86? Recently, the answer has come to light. IBM has chosen to first implement a portable 32-bit device driver model on OS/2 for PowerPC (OS/2fPPC).

Going Where No Developer Wants To Go

When IBM first began explaining its Workplace OS architecture three years ago, an out-of-kernel device driver model was described in which most of the driver ran as a user process and a small device-specific portion attaches to the microkernel. A year later IBM turned its eye toward an out-of-kernel version of the object-oriented Taligent driver architecture. Now, it's the out-of-kernel drivers that use object oriented, device-independent frameworks in combination with a procedural device-dependent layer called ADD32, a portable

32-bit derivation of the 16-bit ADD model of today's OS/2 disk subsystem.

Unfortunately none of these models is present in the current OS/2fPPC beta, which is still built on the old monolithic microkernel drivers. Granted, the beta is intended for application writers, but the absence of a portable driver model indicates that IBM still has its work cut out. IBM must write, integrate, and test the frameworks, and several device drivers, backport them to OS/2 on x86 to ensure portability, and validate their performance on both platforms as well.

As a result, the OS/2fPPC device driver model is a ship issue. If IBM insists on kicking OS/2fPPC out the door in the 3rd or 4th quarter this year, it is unlikely that we will see an extendible, portable device driver model. Without it, OEMs and IHVs will



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be unable to provide device support and OS/2fPPC will only support IBM hardware, giving Windows NT the green light to own the PowerPC platform.

Windows NT will soon be ready to ship on any PowerPC hardware. It has plenty of portable device drivers from its other platforms to draw from, and will be preloaded on IBM's PowerPC systems.

As things stand today, what was once considered the "portable OS/2" has become "OS/2 for The PowerPC Only," except major portions of it look nothing like OS/2. If IBM is really interested in a competitive portable system, why isn't a beta of "portable OS/2" available for x86 at the same time as PowerPC (a la Microsoft with Windows NT)?

OS/2 for x86 First

Unfortunately, as IBM's strategy for the PowerPC and Workplace OS has continued to change, its device driver strategy for the x86 version of OS/2 has remained a question mark. While IBM has discussed the possibility of backporting the OS/2fPPC driver architecture to the OS/2 x86 codebase, it has also mentioned the desire to phase out the OS/2-on-x86 code base entirely by providing an x86 version of its microkernel code base.

Neither option is too exciting because what they fail to recognize is that the x86 systems should be the first priority, not second. The x86 market is where the volume is and will continue to be throughout the end of this century. Even for OS/2, the x86 market numbers in the millions, while the potential PowerPC market over the next few years is orders of magnitude smaller.

Since OS/2 2.0 shipped there have been no significant architectural enhancements to the underlying kernel and device driver model. Had IBM begun building the 32-bit portable device driver model for X86 two years ago, we would be well on our way to building a base of 32-bit portable drivers for the wide variety of x86 hardware that would also crossover onto desktop RISC boxes.

Not developing 32-bit drivers on Warp first, and rolling the dice on the grand object oriented Workplace OS strategy has left IBM ill-equipped to compete on its own new platforms, and is also inhibiting further OS/2 on x86 growth. Just like its applications strategy of "code for OS/2 on x86 and you can recompile for PowerPC" uses the higher volume OS/2 for x86 as a lever for PowerPC development, IBM should do the same for portable 32-bit device drivers. Put them on x86 first to get portable drivers written and then painlessly recompile them for PowerPC later. ♦

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Beyond Batch: ATS for OS/2

This full-fledged job scheduler leverages OS/2's true multitasking to bring mainframe-like scheduling power to your desktop.

REVIEWED BY STAN MIASTKOWSKI

One of the PC's great promises has always been its alleged ability to automate common tasks. To a certain extent, it does. But for serious users, OS/2 batch files and even REXX programs still can't easily schedule tasks to run automatically at certain times or based on certain criteria. Sure, it's not that difficult to schedule a tape backup to happen automatically overnight, for instance. In fact, most backup software offers that option. But what if things get more complex? Say, for example, you want a certain utility to run when a certain data file is changed. Or only when two files are changed. This ability is available in the powerful job-scheduling packages with which mainframe and minicomputer users are familiar. But it just hasn't been available on the PC—until now. ATS from MHR Software and Consulting brings these abilities to OS/2. And version 3, the latest incarnation, adds a raft of necessary bells and useful whistles that bring a huge amount of automatic processing power to OS/2.

ATS is a serious software package, as evidenced by its \$349 price. It's the kind of program that's most useful in a corporate or

small-business environment running a network with OS/2 servers and mission-critical software. That's not to say that ATS won't be of interest to individual OS/2 users with multiple applications. But the very power of the package also makes it complex: it has a steep learning curve.

Events, Tasks, and Queues

With ATS, you define when a program or programs should run (based on time or other events) and exactly what should happen when they do. At the heart of ATS are three types of *entities*: events, tasks, and job queues. Events are actions that must happen (a data file being changed, for example) before a task can begin. A task definition has all the information needed to run a program, including the criteria that defines when it may run. A job queue is an essential part of controlling events and tasks. It controls the use of task resources and determines how tasks are started. In a complex job, the job queue sequences a large group of tasks starting simultaneously according to your specifications, thereby preventing system overload.

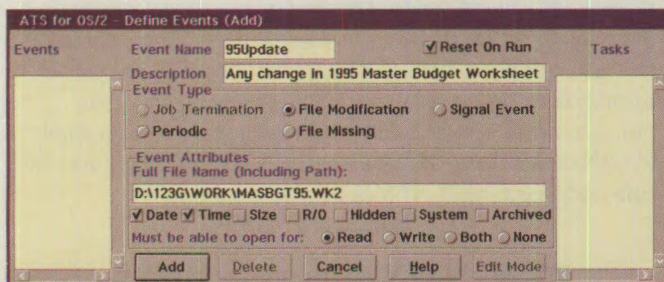


Figure 1: In ATS, you can define any event, such as a change in a spreadsheet, to trigger a task (see Figure 2) that's dependent on the event occurring.

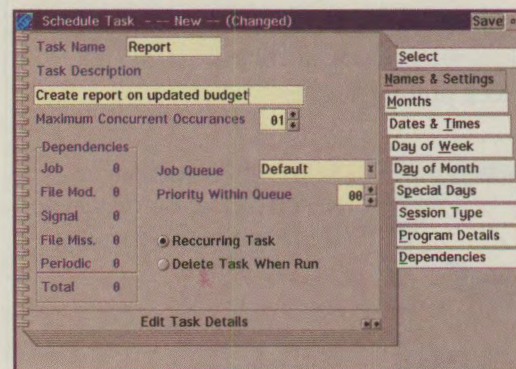


Figure 2: A task can run a program automatically at a defined time, on a defined date, or it can be dependent on one or more events occurring (see Figure 1).

DOT EXE

That's just the start of ATS's power. Relationships among tasks, events, and job queues can be as complex as you want or need. For example, you can assign an unlimited number of tasks to a job queue. And you can make each task dependent on any number of events (or no events at all). MHR underscores the key difference between ATS and a batch or command language: rather than telling ATS when to run your program, you tell it when a program is eligible to run. This is a key concept to remember.

To illustrate, let's say a simple ATS job is running a certain program (a backup utility or report generator, for example) at a particular time on a particular day of the week or month. You have complete control over time dependencies, including whether to run the program on holidays or special days that you define. A more complex example is running an event-based task; for example, running a report generator when a database data file changes or only if two (or more) data files change in different applications.

Further finetuning allows you to run the event-based task

whenever you want. For example, even though the data files have changed, you might not want to bog down your server with the report generator during business hours. ATS would let you run it in the middle of the night instead or at a certain time on certain days of the week.

On the Screen

The ATS user-interface isn't the friendliest I've ever seen: you're presented with a nearly blank window on startup with pull-down menus containing mainframe-relic terms such as *Console* and *Signal Events*. It's not that difficult, however, to figure out that the Edit pull-down will get you started in creating tasks, events, and job queues. MHR has done a good job of integrating the program into the Workplace Shell environment, but the integrated help is a bit thin; and, in some cases, non-existent. Fortunately, the manuals that come with ATS thoroughly introduce you to necessary concepts—especially the Getting Started manual that's chock full of practical examples. You'll need to spend substantial time with

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DOT EXE

ATS to become comfortable with its abilities; any powerful program walks a fine line between complexity and ease of use.

I've only scratched the surface of ATS's abilities. The more I used it, the more features I found. You can, for example, start ATS by double-clicking on the ATS icon, or start it from an OS/2 command-prompt using a variety of parameters that further control how it responds. MHR says version 3 incorporates many features requested by the users of version 2 (version 1 was never released to the public). Every time I thought of some esoteric task, a bit of experimentation showed ATS invariably could perform it. Plainly, ATS designers know all the ins and outs of job control.

ATS illustrates the power of OS/2's 32-bit multitasking environment. It would be horrendously difficult, if not virtually impossible, to create a program of this type for the DOS/Windows environment with its iffy "cooperative" multitasking.

The \$349 price tag is not an inconsequential amount of money for a sophisticated utility program, but ATS can more than pay for itself in time as well as in dollars down the road. ATS can auto-

mate just about any computer-based task you can imagine—and many that you cannot. ♦

Stan Miastkowski is a writer and consultant who has covered the personal computer industry for the last 17 years from his base in the New Hampshire woods. He has been an OS/2 user since version 1.0 and was co-founder and publisher of the OS/2 Report newsletter. He can be reached on the Internet as stanm@bix.com.

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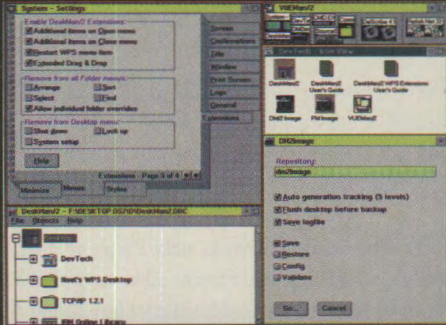
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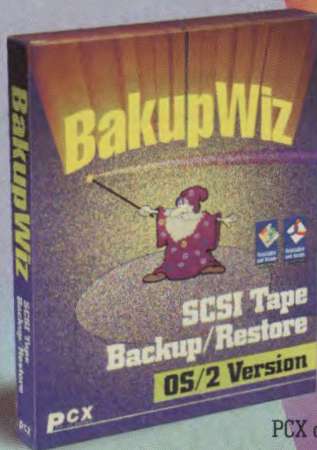
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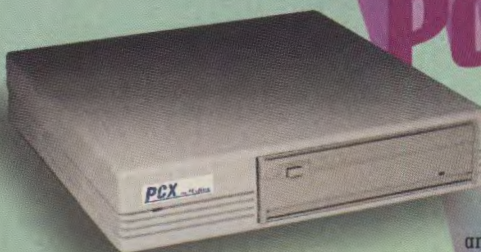


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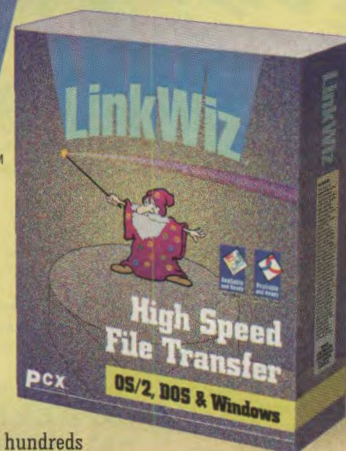
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Exploring the High Cs

MetaWare's C/C++ compiler proves to be an excellent choice for experienced programmers interested in porting a program to different platforms.

REVIEWD BY LEN DORFMAN

Since MetaWare has been in the compiler design business for quite a while, I looked forward to receiving the review copy of their OS/2 High C/C++ compiler. With few exceptions, this compiler will prove a solid addition to an OS/2 programmer's arsenal of development tools.

The MetaWare compiler came packaged with IBM's WorkFrame Version 1.1 Integrated Development Environment, IBM's Developers Toolkit, and Rogue Wave's high quality cross platform Foundation Class Library they've dubbed Tools.h++.

It took about 40 minutes to install the compiler and a few Toolkit demonstration programs—a process that did not go smoothly. The instructions for extracting and installing High C/C++ for OS/2 suggested that the user manually add c:\hcos2\bin to the path in the config.sys file. I was surprised at having to manually edit config.sys—especially after being spoiled by IBM's CSet++ and Borland's OS/2 C/C++ CD-ROM installation. Seeing eight High C/C++ compiler disks, one WorkFrame disk, and eight Developer's Toolkit disks was also quite disheartening.

I placed the first of the eight High C/C++ compiler installation disks into drive A and began the install process. When I noticed the option to modify the config.sys file, I concluded that the provided documentation might be a tad outdated. Shortly after beginning the install process, a dialogue box prompted me

to enter a serial number. I tried to resize the window and the dialog closed. Unable to figure out how to re-open the serial number entry dialog, I canceled the installation and began a re-install of the eight disks. This time I carefully entered the serial number and the installation process completed without a problem.

First, I compiled demonstration programs included with the MetaWare compiler. The Rogue Wave Tools.h++ demonstra-

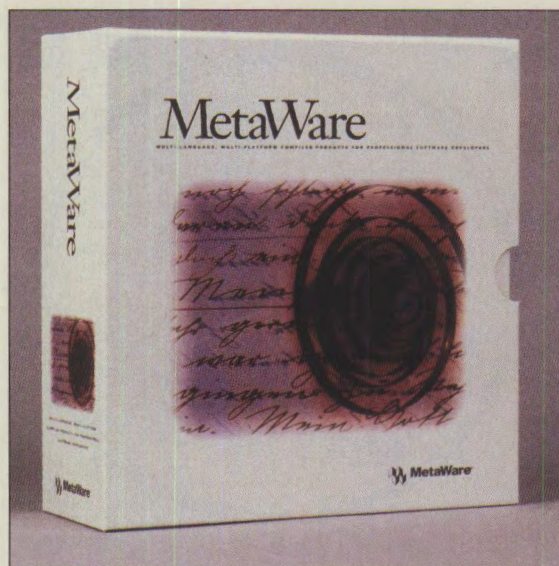
tion programs compiled and linked without a hitch, as did the VIO demo programs. The IBM Developer's Toolkit demonstration program, also provided with the MetaWare compiler, took a bit more time to get compiled and working.

The directories for the IBM Developer Toolkit demonstration programs contained the .C files and a .mak file. Strangely, the .mak file was a direct copy of the IBM .mak file and certainly wouldn't work with the High C/C++ compiler. Also, the

.h, .rc, .dlg, and other support files were all missing from the directories.

Fortunately, I previously had installed the newest version of the IBM's Developer's Toolkit from a Developer's Connection CD a few weeks before I received the High C/C++ compiler and was able to copy all the files necessary to build the Toolkit demonstration programs.

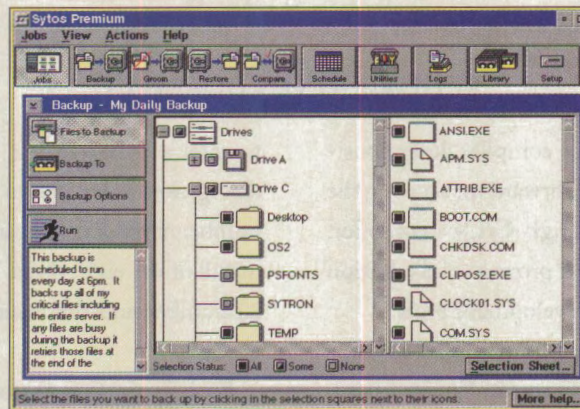
Since I'm familiar with IBM's CSet++ and Borland's C/C++



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DOT EXE

compilers for OS/2, I had little trouble in modifying the .mak files to work with the High C/C++ compiler. The programs compiled and ran just fine.

Feeling confident, I decided to try compiling one of my own programs—Trickle Down, an AI-based strategy game for OS/2 comprised of about 15,000 lines of C code dispersed over eight platform-independent files and one OS/2-specific file. I allowed myself one hour for the port.

The first step in the port process dictated that I make small changes in the makefile. That proved to be trivial and I watched the High C/C++ compiler compile each source module. My sense is that High C/C++ uses very strict type checking—a feature I really like. As I watched the compiler chomp away I couldn't help but feel that I was watching an industrial strength compiler in action.

During the adjustment of my makefile I had inadvertently forgotten to set a variable used for conditional compilation. High C/C++ choked and spit out errors for two lines of code that had previously generated warnings, yet behaved properly when com-

piled for DOS under Borland's C/C++ Version 4.0.

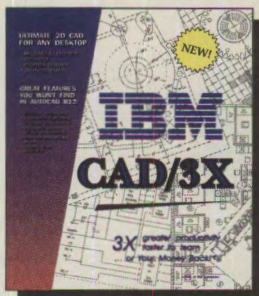
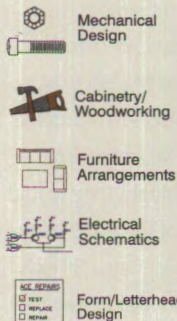
In retrospect, I'm now convinced my coding kludge should have generated an error and not a warning. Here's what I did; see if you concur. I read two bytes from a file via the read() function into memory via a pointer to an int. Ugleeee!

Within 30 minutes, and much to my delight, the High C/C++ version of Trickle Down was up and running just fine. To my eye, the computer's moves at the advanced level ran a bit more swiftly than with the Borland C/C++ compiled Trickle Down and in the same ball park as the IBM CSet++ compiled version.

If you're an experienced programmer familiar with OS/2's API and interested in porting a program to different platforms, the MetaWare High C/C++ compiler proves to be an excellent choice. If, however, you're a solitary programmer approaching the OS/2 API for the first time, I'd suggest that you look toward the IBM's CSet++ or Borland's C/C++ compilers. ♦

.....
Len Dorfman, PhD, is a teacher, writer, and periodic programmer. He can be reached on the Internet at ldorfman@linet.

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System requirements: IBM compatible PC with math coprocessor, 8 MB free on hard disk, mouse. OS/2: 6 MB RAM minimum, OS/2 1.3 or higher. DOS: 1 MB RAM minimum (4 MB recommended), DOS 3.3 or higher.

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GATES giggle AWARD

IBM's lack of advertising prowess is legendary. The topic creeps into the majority of OS/2 discussions our editors have heard or seen in person or online. To date, IBM has proved that no one can waste a promotional

along wall displays in airports all over the country. In big bold letters it reads: "I think it obliterates the software I use right now."

Yes, take a deep breath. That is what it actually says—no explanations, no punch

about Warp, several of them wondered, "Why are they saying that about their own product?"

A few weeks later, I addressed the Long Island OS/2 Users Group and showed them

copies of the ad. People groaned in disbelief that IBM could actually propagate such a statement. One executive at the meeting said, "This is about the stupidest thing IBM has ever done." When I spoke to various IBM executives in New York and Texas about the ad, several refused to believe it actually existed. One said, "Tell me we're not that dumb."

OS/2 Professional did some checking. The statement: "I think it obliterates the software I use right now" is an excerpt from one of the Pimple People TV ads. You remember those "Guess the Product" ads that poor Ogilvy & Mather was forced to produce. To provide continuity, PSP advertising executives thought they would repeat some of the more memorable remarks. One PSP exec

conceded, "Standing alone, it did not convey the same message as when it was spoken on TV among other comments."

The wall displays are up for two months and will probably come down by mid-May. If anyone sees one in an airport, vandalism is discouraged. But please understand that Gates doesn't have to do a lot to make IBM lose. They do it all by themselves.

I hereby bestow the first Gates Giggle Award to The Obliterating Warp Ad.

Edwin Black



dollar better, or miss a promotional opportunity more predictably. Whether it's buying full page ads in the *New York Times* to promote Windows NT, or spending millions on an ambiguous advertising campaign that flopped, Bill Gates has undoubtedly had quite a bit to chuckle about. But it's one thing to be ambiguous, ill-timed, unlucky, and uncreative. It is quite another to be visibly destructive.

The single most destructive Warp ad IBM has ever produced was plastered recently

line. Last month, I stood in front of the ad at Chicago's Midway Airport utterly bewildered. I asked 10 people passing by what they thought it meant. A computer technician thought the product was a dynamic new disk-erasing tool. A secretary thought it was "a virus or a virus fixer." A bank officer said he thought it might be a public service message warning people not to buy a certain product, but he wasn't sure which. No one looking at the ad could tell me the name of the product or what it did. When I explained



MARKETLINE

Product News for the OS/2 User

SCOOPS

Clone With A Click

At presstime, a LAN version of Rightware's LinkRight was in beta testing and expected to be released in mid-April.

LinkRight allows a temporary connection between two systems for the transfer of files and directories. This new version looks similar to the serial and parallel port model, but uses NetBIOS to work over a network, the company says.

"We began the beta test run in early March and the response has been very positive," Rightware developer Jeff Tremble told *OS/2 Professional*. LinkRight for LANs is available in an administrator

version and a user version.

The company says that LinkRight for LANs will include support for only OS/2 but the next release may be DOS-ready. The user version supports copying of files and directories. The administrator version can be used for cloning OS/2 systems across a network. It also allows the administrator to set up multiple connections for one-to-many transfers using NetBIOS Multicasting. This cuts down on the elapsed time for installs, the company says, because it allows large files to be broadcast from the source system to

multiple target systems.

The company's initial timing tests indicate that one clone of a 40 MB partition takes about 15 minutes, 5 clones require 30 minutes, 30 clones take one hour, and 400 clones can be completed in 8 hours. These are rough estimates taken from "average machines," used to show the advantages of cloning, the company says. "You'll get these kinds of results using a 486/33 machine," says Tremble.

The LAN version will also ship with a set of five utilities designed through beta testers' feedback to assist the cloning

process. The utilities are OS/2 command line utilities designed to monitor, compare, and view transferred files. One such utility, Pack Partition, will compress an entire partition from a source machine into one file to facilitate mass cloneings, says Tremble.

Pricing has not yet been decided but the company estimates that a 100-user license will retail for \$250 and a 1,000-user license for \$995. In a separate announcement, Rightware reconfirmed its commitment to developing for the OS/2 for the PowerPC platform but declined to comment on its development plans.

New Products

Develop your voice

Exploiting the power and flexibility of OS/2, Sunrise Systems, Inc.'s Advanced Voice Professional 2.0 provides endusers and developers integration of voice, FAX, and database capabilities.

Advanced Voice Professional 2.0 is an interactive voice response platform using Dialogic telephone hardware. AIM programming language masks the Advanced Voice platform and enables users to develop and modify voice processing applications.

Other features include ana-

log, digital, dBASE NDX, and Clipper NTX index support, multiple applications on multiple lines, and ANI and Caller ID support.

The Advanced Voice Professional 24-port version is available at \$695 for a limited time.

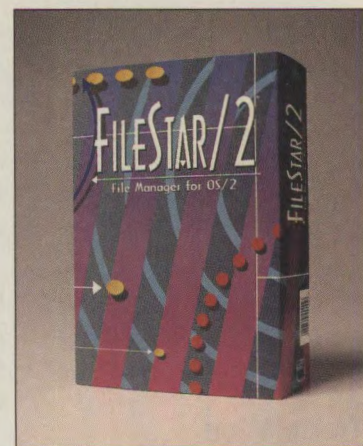
Sunrise Systems, Inc., 617 West Victory Road, Henderson, NV 89015. (702) 566-6646, fax (702) 566-6634.

Celestial files

FileStar/2, a full-featured PM file manager for OS/2, is now being marketed by SofTouch Systems.

FileStar/2 adds capabilities found in the OS/2 PM environment to a list of traditional file manager utilities. Users can cruise directories for copying, moving, renaming, and deleting files. File sizes, drive free space, swap file size, and available memory information is all readily available. Files may be archived by using the included InfoZIP archiving software, and archived file components may be viewed in the ZipView window.

For a limited time the single user version of



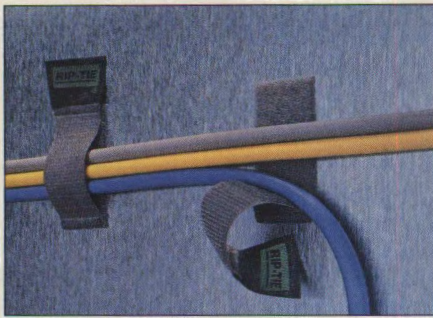
FileStar/2 includes InfoZIP for easy file archiving.

FileStar/2 is available for \$59.

SofTouch Systems, Inc., 1300 S. Meridian, Suite 600, Oklahoma City, OK 73108. (405) 947-8085, fax (405) 632-6537.

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Get organized and put an end to tangled cables with the Rip-Tie Company's CableCatches.



Fit to be Rip-Tied

CableCatch Velcro Fasteners, new from the Rip-Tie Company, anchor cords, cables, and wires securely to equipment racks, desks, or walls. Their secure, safe grip on cable lines aids in the prevention of data loss and equipment failure. Built for durability, individual

CableCatches have survived more than 10,000 closures.

Pricing ranges from \$5.49 to \$236 depending on the size of CableCatch and quantity.

The Rip-Tie Company, PO Box 77394, San Francisco, CA 94107. (415) 543-0170, fax (415) 777-9868.

Check (+), please

Check+, a fully graphical OS/2 application for home and office financial management, is now available from Computer Interface Corporation.

Users may set up an unlimited number and variety of accounts, enter and print checks, balance statements, and record such transactions as deposits, withdrawals, and interest. Check+ provides budgeting information, and income/expense analysis and reports for accounting and tax preparation.

Other features include minimum balance and mailed balance tracking, complete on-line help, and a Payment Prompter to remind the user of regularly entered checks and deposits. Check+ financial software is available for \$89.

Computer Interface Corporation, 5 Whittier Road, Natick, MA 01760. (508) 651-8111, fax (508) 651-8112.

Translation assistance

Microway has released its family of DEC Alpha Compilers, including NDP Fortran, C/C++, and NDP Pascal.

Thirty-two bit versions of these translators are available for the Intel x86 platform

running on DOS, NT, OS/2, and UNIX. These products integrate Microway-developed technology for code production driving RISC and Vector devices to achieve a full-speed Alpha-numerics code.

Requiring the use of the DEC Alpha assembler and appropriate system linker, Microway's Alpha compilers run on NT and OSF. Syntax and extensions of NDP Fortran contain many VAX VMS Fortran extensions. NDP C/C++ and Pascal have required extensions allowing these applications to take full advantage of their host operating system.

Microway's NDP Alpha compiler NT version costs \$795. OSF version pricing is available from Microway.

Microway, PO Box 79, Kingston, MA 02364. (508) 746-7341, fax (508) 746-4678, e-mail: tech@microway.com.

See-and-store

Visual Input is the newest release from microMEDIA Imaging Systems, Inc. This object oriented software operates under OS/2 and loads external images into IBM's VisualInfo System.

VisualInfo can be used to store images scanned from microfilm, microfiche, aperture cards, slides, engineering documents, and other off-line scanners. DOS, Windows, Unix, and other systems can be used for basic input. Multiple OS/2 clients can simultaneously load images and indices. Users having unique or high volume document input requirements to IBM's VisualInfo may avoid extensive integration via microMEDIA's Visual Input Program.

For pricing information contact microMEDIA Imaging Systems, 1979 Marcus Avenue, Lake Success, NY 11042. (516) 355-0300, ext. 132, fax (516) 355-0316.

Bugs TAWK back

TAWK Compiler version 4.1 with integrated TAWK Debugger is now being marketed by Thompson Automation Software. The software provides full screen, source code level interactive debugging and features breakpoints, watched variables, and stack trace.

TAWK Compiler features wider functionality than AT&T's original AWK language, the company claims, and features pattern matching,

searching, sorting, extensive text manipulation functions, and built-in EMS/XMS memory management.

TAWK Compiler 4.1 is available on 3.5 disk for Windows, OS/2, or Windows NT versions for \$149, or a version including all three for \$199.

Thompson Automation Software, 5616 SW Jefferson, Portland, OR 97221-2597. (800) 944-0139, fax (503) 224-1639.



TAWK Compiler from Thompson Automation Software provides full screen, source code level debugging.

Multimedia blueprint

Cisco Systems has developed a blueprint for network managers to implement multimedia applications. Cisco's plan provides end-to-end quality of

MARKETLINE

service, multipoint packet delivery, and bandwidth.

The blueprint gives users immediate access to such applications as multimedia e-mail, desktop videoconferencing, distance learning, and collaborative computing. ATM,

high-speed switching, and other advanced applications can complement the blueprint when needed.

Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706. (408) 526-7388.

Cisco Systems' blueprint for multimedia applications can help network managers exploit their network's resources.



News

Stac pack

The decision to load Warp on an already maxxed-out drive isn't an easy one to make. The laptop-toting public wanting to take advantage of Warp's capabilities often can't because of their small and already tightly packed, 120 MB drives. But a recent bundling agreement between Stac Electronics and IBM could change this. For a limited time, Stacker 4.0 for OS/2 and DOS, a \$30 rebate certificate, and Warp will be shrink-wrapped together. The bundled package will retail for around \$129, for an after-rebate cost of \$89, the company says. The package must be purchased on or before July 15 to receive the \$30 rebate from IBM.

The package also addresses the concerns of those users who have already compressed their disks using DoubleSpace or other disk compression technology but want to install Warp. "If you're currently running another disk compression utility, you have some ugly options if you want to decompress and load Warp. But Stacker will recognize these other compressions and allow

you to go ahead and easily install Warp," says Bruce Behymer, product manager for Stac.

The package will include Stacker 4.0 for OS/2 and DOS, which features 2.5:1 disk compression, and Warp without the Windows code.

Dead bugs

Quick on the heels of its latest upgrade, version 2.0.1, Mesa 2 plans to offer version 2.0.2. "We are now beta-testing the follow-up to our January upgrade, 2.0.1," says Phil LaBelle, Athena Design communications assistant.

The company says that it can offer updates and fixes so quickly because of its small size and overwhelming user response. Version 2.0.1 offers fixes to bugs detected either in-house or by users. Corrections and features of the currently available update address desktop, printer, keyboard, menu/manager, and pop-up menu/help panel issues. Version 2.0.1's new layer RMB menu includes range-formatting, sorting, and similar redesigned functions such as page tab, row heading, column

heading, and script.

The current update, 2.0.1, is available at <ftp.athena.com/-pub/Mesa2/mesa201.zip>. The company says that availability of the next fix, Mesa 2.0.2, is expected later this year.

It's about time

Explaining Warp to a market dominated by computers that run on Windows can be difficult for even the most seasoned OS/2 veteran. Let's face it, it's difficult to explain true multitasking to a public that has spent years staring at an hourglass. And the Warp ad campaign has yet to paint a clear picture. But all this could soon change.

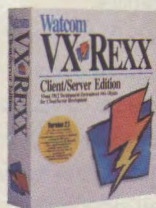
Beginning April 15, the PC Company will begin offering Select-A-System. First available in the U.S. on the 701C Butterfly notebook, the Select-A-System will allow users to sample, choose, or remove Warp, Windows, or Warp with WIN-OS/2. "We're getting great dealer response because they don't have to stock as many computers," says IBM Spokesperson Tara Sexton. She adds, "They don't have to ask the

buyer about which operating system they want because the user can make the choice later. Instead they can just focus on hardware choices."

The Select-A-System works through an elegant dual-boot feature developed by the PC Company. The user clicks on an icon to pick the operating system they want. "It comes up the first time they turn the computer on, but they can return to the menu later if they want to remove either Windows or Warp. This gives the users unlimited time to experiment with each operating system," says Sexton. All Select-A-Systems will ship with two distinct operating environments so if users do choose to remove Warp, they are left with an un-Warped Windows environment.

Worldwide availability will follow soon after the U.S. release and Select-A-System will come preloaded on the ThinkPad, Aptiva, PC 300, and PC 700, the company says. There will be no price increase for the systems that ship with the Select-A-System option. ♦

Fast Visual Application Development for OS/2 and DB2



If you're looking for fast and easy application development for OS/2, then take a look at the award-winning Watcom VX•REXX visual development environment. VX•REXX lets you build applications to exploit the graphical user interface, multi-threading, and multi-processing power of OS/2. VX•REXX Client/Server Edition gives you the added power to access DB2 or other database systems, manipulate the

data, and chart the results at lightning speed.

"We like VX•REXX. Using it for development feels like driving a Porsche: it's fast, it's compact, everything's in the right place, and it makes us look good, too."
Peter Coffee, PC WEEK

Designed to Meet Your Needs.

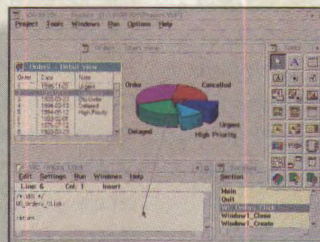
Watcom VX•REXX combines a project management facility, visual designer and an interactive debugger to deliver a highly productive visual development environment. The Client/Server Edition includes additional powerful objects so you can rapidly create rich GUI database applications. You can create OS/2 client applications which connect to DB2/2 or DB2/6000. Use IBM's DRDA support on OS/2 to access DB2 for MVS, DB2/400 for AS/400, and DB2/VSE and VM (SQL/DS) for VM and VSE. Also supported are Watcom SQL and ODBC-enabled databases.

"Overall, this edition of VX•REXX for OS/2 is an outstanding visual client/server development platform." Nicholas Petreley, InfoWorld

- Over 2 dozen objects, including CUA'91 containers, notebooks, pop-up menus and more
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To create an application you draw user interface objects, customize their properties using standard OS/2 notebooks, and define their event code using powerful drag-and-drop programming. To add database access just draw a query object, visually design a SQL query, press OK and presto—your window is automatically populated with objects that are bound to your query to display, update and search your data.

"Drag-and-drop nirvana." Nicholas Petreley, InfoWorld

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Energize your applications by displaying your data in a 3D chart. The Client/Server Edition gives you more than a dozen chart types to choose from, along with over 150 display options. You also get complete support for run-time events so you can bring new drama to your data by making your chart interactive.

"VX•REXX is a must buy." Jacques Surveyer, ComputerWorld

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† ODBC drivers are available from INTERSOLV, Inc. Watcom, the Lightning Device, and VX•REXX are trademarks of Watcom International Corporation. Other trademarks are properties of their respective owners. ©Copyright 1994 Watcom International Corporation.

For more information circle #100



Programming with **DSOM**

BY CHRISTINA LAU

Last month's Code Cache column [*Programming with SOM*, April] provided an introduction to SOM. It showed the basic steps for creating SOM classes and discussed inheritance and metaclass for a client program that created student objects for a school system. This month's column extends that example by showing how the student objects can be shared by multiple processes through Distributed SOM (DSOM).

DSOM is a framework built on SOM; an application can use DSOM to access objects in other processes through one of two flavors that access the same or different machines. The DSOM run-time that allows distribution among processes on the same machine is called Workstation DSOM and ships with OS/2 Warp. The DSOM run-time that allows distribution among a network of machines is Workgroup DSOM, and is currently available for OS/2, AIX, and Windows. Communication transports supported on all three platforms include TCP/IP and Netware IPX/SPX. On OS/2 and Windows machines, DSOM also supports NetBIOS.

DSOM acts as an Object Request Broker (ORB), complying with the Object Management Group (OMG) specification of the Common Object Request Broker Architecture (CORBA). The ORB interconnects multiple object systems by providing the mechanisms whereby objects transparently make and receive requests and responses.

DSOM's design makes it easy to migrate your SOM objects into the distributed environment. To use DSOM, you must create a dynamic link library (DLL) for your SOM classes, set up some environment variables, and register the classes and server implementations in the SOM Interface Repository and the DSOM Implementation Repository. Each machine must also start a process known as the DSOM daemon. A client program can then create objects either locally or remotely by making different method calls. The following sec-

LISTING 1

```
#include <somobj.idl>
interface Person : SOMObject
{
    attribute string name;
    void display();
    #ifdef __SOMIDL__
    implementation
    {
        releaseorder : display,
                                _set_name, _get_name;

        name: noset;
        somUninit: override;
        dllname = "univ.dll";
    };
    #endif
};
```

LISTING 2

```
#include "person.xh"
#include "student.xh"
#ifdef __IBMC__
    #pragma linkage(SOMInitModule,system)
#endif
SOMEXTERN void SOMLINK SOMInitModule(long majorVersion,

    long minorVersion,

    string className)
{
    PersonNewClass(Person_MajorVersion,
                    Person_MinorVersion);
    StudentNewClass(Student_MajorVersion,
                     Student_MinorVersion);
}
```

LISTING 3

```
LIBRARY univ INITINSTANCE
DESCRIPTION 'University Class Library'
PROTMODE
DATA MULTIPLE NONSHARED LOADONCALL
EXPORTS
    SOMInitModule
    PersonCClassData
    PersonClassData
    PersonNewClass
    StudentCClassData
    StudentClassData
    StudentNewClass
    M_StudentCClassData
```


CODE CACHE

```
M_StudentClassData
M_StudentNewClass
```

LISTING 4

```
#include "student.xh"
#include <somd.xh>

Environment *ev;

printPersonData(Person *person)
{
    person->display(ev);
}

int main(int argc, char *argv[])
{
    Person      *rod;
    Student     *mary, *john;
    SOMDServer  *server;
    M_Student   *studentClass;

    ev = SOM_CreateLocalEnvironment();
    SOMD_Init(ev);

    server = SOMD_ObjectMgr->somdFindServerByName
```

tions illustrate these steps in detail by modifying last month's example.

Creating a DLL

To create a DLL for your SOM classes, you must set the dllname modifier in the implementation section of each IDL. Listing 1 shows the person.idl with the dllname modifier set to "univ.dll." Similar changes should be made to the student.idl file.

You must provide the initialization function SOMInitModule, which SOM calls whenever it loads a class library. Typically, the initialization function invokes the NewClass procedure for each class in the class library. Listing 2 shows the initialization function for the Student and Person classes in the "univ.dll".

Finally, you must include a module definition file to export the symbols for each class. Each class has three required export symbols. Listing 3 shows the module definition file for "univ.dll."

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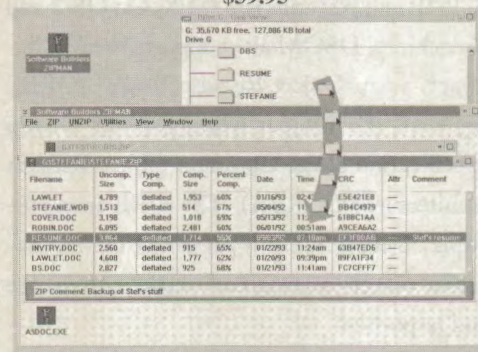
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DSOM Server

A DSOM server manages and executes object implementations. Upon a request from a client, a DSOM server loads the DLL for the class, creates or locates the target object, invokes the method with the parameters, and returns the results to the client. DSOM provides a generic server program, somdsvr.exe, that handles these tasks and can be used in many situations. The generic server simply receives requests and executes them synchronously until the server is stopped. Using the generic server, you can easily distribute your classes without additional programming cost.

Registration

To allow remote access to your SOM classes, you must register each class interface and the server implementation in the Interface Repository. DSOM uses the Interface Repository to find information on method parameters, return type, and the DLL name for a class. To pop-

```
(ev, "UToronto");
if (server)
{
    rod = (Person *) server->somdCreateObj
        (ev, "Person", "");
    rod->_set_name(ev, "Rod Johnson");

    studentClass = (M_Student *)
        server->somdGetClassObj(ev, "Student");

    mary = studentClass->newStudent (ev, "Science");
    mary->_set_name(ev, "Mary Law");

    john = studentClass->newStudent (ev, "Arts");
    john->_set_name(ev, "John Sears");

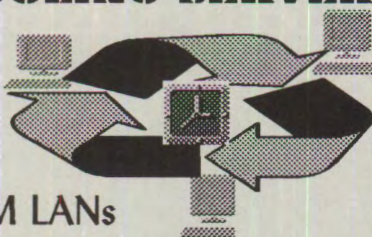
    printPersonData(rod);
    printPersonData(mary);
    printPersonData(john);
}

SOMD_Uninit(ev);
SOM_DestroyLocalEnvironment(ev);

return(0);
}
```

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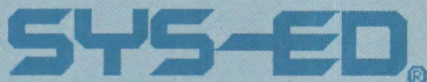
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ulate the Interface Repository, use the Interface Repository emitter invoked through the SOM compiler. The following commands compile the Person and Student class into the Interface Repository.

```
sc -sir -u person.idl
sc -sir -u student.idl
```

DSOM uses the Implementation Repository to locate and activate a server so that clients can invoke methods on it. When you run the implementation registration utility, you specify the name of the DSOM server, the classes associated with the server, the name of the program that will execute as the server (e.g. somdsrv.exe), and some other administration information. The following commands define a server named "UToronto," which supports the Person and Student class.

```
regimpl -A -i UToronto
regimpl -a -i UToronto -c Person -c Student
```

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The "UToronto" server manages student information for the University of Toronto. You can define another server, for example "UCali," that manages student information for the University of California.

DSOM Environment Variables

DSOM locates the Interface Repository and the Implementation Repository by looking at the environment variables SOMIR and SOMDDIR. The Interface Repository is composed of a list of files. When you install SOM, the installation program sets the SOMIR variable in your CONFIG.SYS file. The SOMDDIR points to a directory that contains the Implementation Repository. If you are using Workgroup DSOM, you must make sure that all the machines either have identical copies of the Implementation Repository or share access to it through a shared file system.

The environment variable HOSTNAME and USERID identifies the machine name and the user ID of a client application. If you are using Workgroup DSOM, you must tell DSOM what communication protocol you are using by setting the variable SOMSOCKETS. For example, if you are using TCP/IP, set it to TCPIP.Sockets.

Client Programming

Whether your SOM objects are local or remote depends on how you create them. In our earlier example, the Person and Student objects existed within the same process as the client program. They are created using the new operator.

Listing 4 shows the rewritten client program using DSOM to create and access Person and Student objects. We first initialize the DSOM run-time environment by calling SOMD_Init. The DSOM Object Manager is created during initialization, and a pointer to this object is stored in the global variable SOMD_ObjectMgr. We then call the somdFindServerByName method from the DSOM Object Manager to find a specific server, "UToronto." DSOM returns a pointer to a server that is capable of creating the Person class. The client can then call somdCreateObj to create a Person object in this server. If the object is created successfully, DSOM returns a proxy to the object, which is a local representation for a remote object. Once you have a proxy, you can invoke methods on the object as if the object were local.

The call somdGetClassObj obtains a proxy to the class object for the Student class. Using the returned proxy, the client can invoke the class method newStudent to create the Student objects.

The DSOM Daemon

To run your DSOM application, the DSOM daemon somdd must be started on each server machine. The DSOM daemon is responsible for establishing a connection between a client process and a server. When a request is made and if the server is not already running, the DSOM daemon will automatically start the server. The following command can be used to start the DSOM daemon:

```
start somdd
```

Once the DSOM daemon is running, you can run the client application. A second process will appear; this is the "UToronto" server process. The output of your classes appears in the window for the server process since we used somPrintf, which prints to standard out. In a real distributed application, you should output to a file so that the output is not lost.

Summary


DSOM is a very powerful framework that lets you build distributed applications with very little code. You can develop your classes without initially knowing whether they are to be used in a single or remote process. With Workstation DSOM, you can develop and test your distributed objects in a single machine environment and then switch to Workgroup DSOM to deploy your objects over a network of machines. ♦

Christina Lau is the author of the book, Object-Oriented Programming Using SOM and DSOM. She works in the Application Development area in the IBM SWS Toronto Laboratory. She can be reached at clau@torolab6.vnet.ibm.com.

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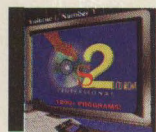


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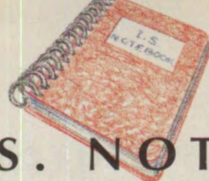
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THE I.S. NOTEBOOK

Tips and Techniques for the OS/2 Professional

Flexing Warp's Muscles

BY GORDON SCOTT

OS/2 is a powerful operating system by any measure. But when that measure is flexibility, OS/2 Warp is as powerful as they come. Its flexibility comes in the form of optional features—from startup to shutdown. You don't have to start your computer, or your applications, the same way each time. If your associates start Warp in different ways, or run programs with different environments, tell them about Warp's ability to provide a menu of alternate CONFIG.SYS files. If you haven't heard about this feature, this month's column is for you.

Start Warp choosing from a menu of configurations.

- Create two or more different, but valid, CONFIG.SYS files.
- Name the files CONFIG.A and CONFIG.B (name a third file CONFIG.C, and so forth if you have more than three).
- Copy the CONFIG.* files to the \OS2\BOOT directory.
- EDIT the file ALTF1BOT.SCR in the \OS2\BOOT directory.
- Add these two lines to the file (which is probably empty to begin with):
A) Start using CONFIG.A —
B) Start using CONFIG.B —
- Save and exit ALTF1BOT.SCR.

The next time you reboot you will be able to use these alternate configurations with the following steps.

- While the computer is booting up type ALT+F1 when you see a small white box appear in the upper left corner of the screen.
- While the Recovery options screen is

displayed, type the letter that corresponds to your desired configuration file (for example, A for CONFIG.A and so forth).

These steps allow you to create different configurations for the same computer. This is useful if more than one person is using the computer or if one user wants to use a different setup for different applications.

For example, suppose you have a demo machine that your company uses for trade shows, customer visits, or internal group demonstrations. Suppose that the applications being demonstrated include a multimedia application (for trade shows), a networked application (for internal demos), and a networked multimedia application (to impress a customer). You don't want to have the machine booting up with errors in front of your prospects, customers, or fellow employees, and you don't want to have to edit your CONFIG.SYS file to remove or add REM statements every time you boot up. You can use the steps mentioned previously to choose whichever startup configuration you need. In this case, you can be sure to have three valid CONFIG.SYS files if you simply plan ahead. Here's how:

Set up your system so that it correctly starts up in the demo environment for the trade show (so that the multimedia features and devices are specified in the CONFIG.SYS). Save a copy of that file to \OS2\BOOT and name it CONFIG.A.

Then set up your system so that it correctly starts the network, without enabling the multimedia drivers and devices. Save a copy of that file to \OS2\BOOT and name it CONFIG.B.

Then set up your system so that it

correctly starts the network and multimedia devices. Save a copy of that file to \OS2\BOOT and name it CONFIG.C.

You could then modify the file ALTF1BOT.SCR to include the following three lines:

- 1) Multimedia startup with no network connected (CONFIG.A)
- 2) Network startup with no multimedia devices loaded (CONFIG.B)
- 3) Network and multimedia devices both loaded at startup (CONFIG.C)

The file will display those three lines at the bottom of the Recovery options menu. (The recovery options menu is composed of three files: ALTF1TOP.SCR, ALTF1MID.SCR, ALTF1BOT.SCR. The system modifies ALTF1MID.SCR, but leaves the other two untouched. You can modify the other two files to contain any text you like, but be sure the end result still fits on one screen.)

Another case for using alternate configurations might be a laptop user. This user may need the system connected to a network docking station at the office, but not connected to anything while on the road. Setting up two valid configuration files and making them available from the Recovery options menu would help this user.

Start the same DOS program with two different DOS environments from the same machine.

- Create two program objects on the OS/2 Desktop. (You can use the Program template or simply copy any existing program object.)
- Specify all the options you want for a

THE I.S. NOTEBOOK

normal startup in a DOS session using the first program object you created.

- Create an AUTOEXEC.BAT file which loads a different DOS environment than the default AUTOEXEC.BAT file, and place it in any directory other than the one in which your current AUTOEXEC.BAT file is placed.
- Open the Settings notebook for the second program object you created.
- Select the DOS Settings push button.
- Select the option DOS_AUTOEXEC from the list.
- In the Entry field on the right of the notebook page, enter the full path and name of the new AUTOEXEC.BAT file you created.
- Close the settings notebook.

When you start these two DOS programs one will start with the default AUTOEXEC.BAT file provided by

OS/2, and the other will start with the new AUTOEXEC.BAT file you created. This feature can be especially useful for testing performance or functions in differing environments.

It can also be useful for working with DOS applications that simply require special AUTOEXEC.BAT parameters that OS/2's default AUTOEXEC.BAT does not provide.

Another use for this technique is to load TSR (terminate-stay-resident) programs into a DOS environment. Using this technique, you could load different combinations of TSR programs along with different DOS programs or different instances of the same DOS program. DOS TSRs will be restricted to accessing the memory you make available to the DOS session you loaded them in, not the entire system memory available to OS/2.

Allow the system to automatically recover from even the worst errors.

- Edit the CONFIG.SYS file
- Add the following two lines at some point:
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REIPL=ON

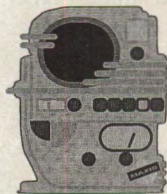
These two lines will automatically restart the system even if it experiences a TRAP error. Such errors usually require the user to restart the machine, but with these two lines in the CONFIG.SYS, OS/2 will write out all the trap error information in a file on the C drive. If for some reason the system cannot write the information to the drive (for instance, the drive may be full), the system will attempt to write

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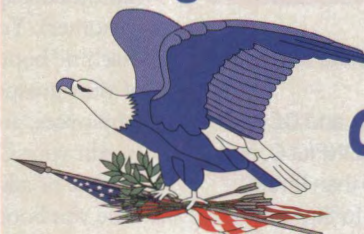
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Gordon Scott has contributed to OS/2 Professional since its first issue. His background is in technical writing, instructional development, and OS/2 evangelism.



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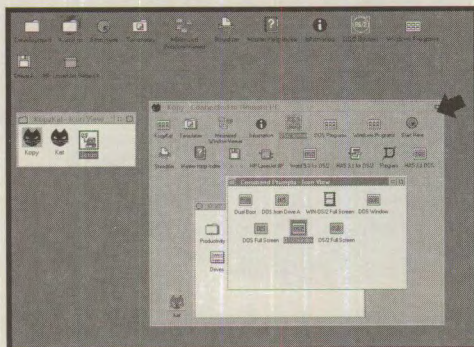


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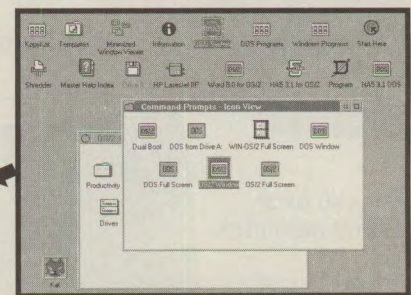
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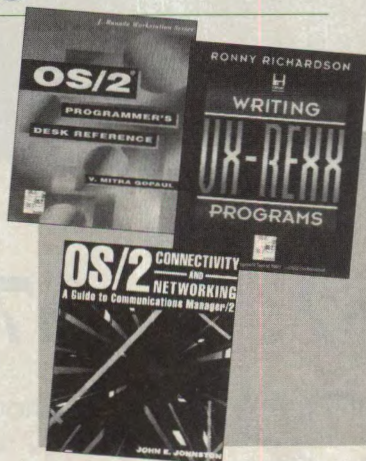
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RUNNING WINDOWS APPLICATIONS IN OS/2

by Ayodele Anise, Teresa Behr Beck, and Jean Nemec Shortley
VNR Computer Library, 372 pages, \$34.95

REVIEWED BY ALAN JAY WEINER

Face it! There are a lot of Windows applications. While native OS/2 software is increasing, most applications are still being written for Windows.

So what's an OS/2 user to do? No problem. OS/2 supports Windows software—but you already knew that. You're likely already running some Windows applications under WIN-OS/2, and just as likely bewildered by all the options and configuration choices available.

There are a lot of choices. Ranging from the WIN-OS/2 session settings, to Windows .INI files, to control panel settings—it's easy to become confused. How can you know you're running your programs in the most efficient manner—or what to change if the program doesn't run at all?

You could turn to *Running Windows Applications in OS/2*. What you would find is a tremendous amount of detailed information about WIN-OS/2. Unfortunately, you'd still be confused—just in different ways.

Written by three of the team leaders who developed WIN-OS/2, *Running Windows Applications in OS/2* focuses on installing and configuring WIN-OS/2. Often the book provides capsule descriptions about how things work. The chapter on printing, for example, flowcharts a print job traveling from a Windows application through WIN-OS/2 to OS/2 itself and finally to the printer. The authors briefly explain how the various drivers are involved in providing the ability to print from anywhere—DOS, WIN-OS/2, or OS/2. They show why you need both OS/2 and Windows drivers, provide step-by-step instructions to installing them, and go over the system settings that affect the printer. A similar chapter covers the video display: installing drivers, changing display resolution, and more behind-the-scenes, how-it-works information.

This is all useful stuff, and much of the book is equally informative. The authors provide step-by-step instructions for many procedures: modifying settings, installing OS/2 and WIN-OS/2 drivers, and installing WIN-OS/2 itself. Some of these are simple and well covered elsewhere (like the Warp manual or on-line help). However, it's convenient to have them in one book.

The book was written initially to cover OS/2 version 2.0 and 2.1; a final chapter enumerates the latest improvements with Warp. As some information is dependent on which version of

OS/2 you're running, you need to check the Warp section for differences or additional capabilities.

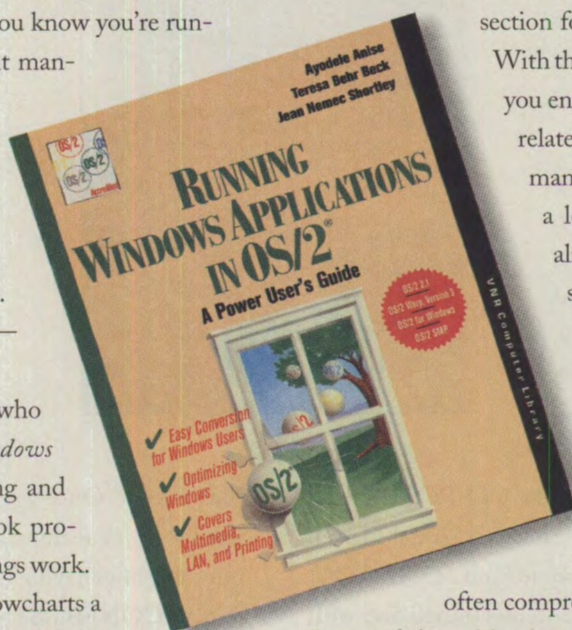
With the occasional references to other sections, you end up jumping around to find everything related to a topic. The index is little help—many topics aren't listed, and some have such a long string of page numbers that it's almost useless. For example, the session settings are scattered throughout the book. While it's good that those settings related to a topic are covered in that topic's area, looking for any particular setting is an exercise in futility.

The book's production appears similarly untidy. The drawings (screen captures) are of poor quality—

often compressed horizontally almost to unreadability—and the writing is occasionally convoluted and disjointed.

Still, the book has value. The authors have insights into how WIN-OS/2 was created and their comments about its internals are enlightening. And when you can find what you're looking for, their step-by-step instructions are good. If you search by chapter headings, you'll usually find what you need. ♦

Alan Jay Weiner develops systems software in Needham, Massachusetts. With two small children and five computers, he's often confused about what goes where. He can be reached on Bix as "aweiner" or on the Internet as "aweiner@bix.com"





Hard Disk Hangups

BY JERRY POURNELLE

Every time I think OS/2 is ready for prime time, there's another installation problem. Some are more interesting than others. PC-type systems can't address more than 1024 cylinders in a boot drive. This limit is built into the BIOS: there are only 10 bits ($2^{10} = 1024$) reserved to tell the system what data cylinder to look for. You can have more than 1024 cylinders of files; the limit applies only to files needed to boot the machine. But for those files the limit is absolute and there's no way around it.

When Warp first came out, my son Alex bought a copy for a client who really wanted the IBM Voice Type speech recognition program, which only runs under OS/2. Both Alex and his client assumed all the software would work on IBM Ambra computers.

Although IBM Voice Type is an OS/2 program, you can't install OS/2 on an IBM computer with the Voice Type board in it. You have to remove the board first. Once that was done, all went well, and the client was quite happy—so much so that he wanted OS/2 and Voice Type in his other Ambra machines.

Alex first attempted installation with the CD-ROM version of Warp. This failed dismally. Moreover, it left partial files all over the disk drive. Figuring this was some kind of CD-ROM problem, Alex cleaned off the file fragments and started over with the floppy version. That didn't work either. He got the mysterious message: FAT lazywriter error. Eventually he got past disk seven at which time you are supposed to reboot. The reboot produced an even more obscure error message: SYS0318: Message file OS001.MSG not found for message number 2. OS/2 was so confused that it couldn't even find its own error messages. Worse, the abortive install left chunks of OS/2 all over the disk drive, which took hours to eliminate.

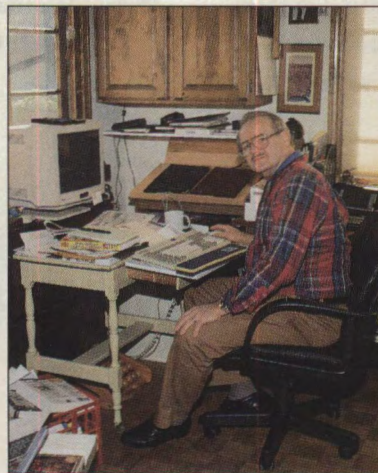
Though friendly and courteous, three IBM OS/2 technicians

didn't know why the installation failed on an IBM Ambra machine. Finally they found the answer: this Ambra had 1,416 cylinders on the boot disk. That's no problem for DOS, because all the boot files DOS wants are well within the magic 1024-cylinder limit. It was no problem for the first Warp installation, because that machine had only DOS and Windows—well under a megabyte of files on that 760-Meg disk. OS/2 had no problem putting itself inside the 1024 limit.

The next installation was to a machine that had more than 600 megabytes on it. Since there was no room for OS/2 to squeeze in under the 1024 cylinder mark, the program wrote boot files above that limit. When the system rebooted, it couldn't find any files outside the 1024 cylinder limit. The solution: segregate the drive and move everything but DOS and Windows to a different drive. But how long would it take an IBM software engineer to program OS/2's INSTALL to ensure the installation went in under 1024 cylinders? Even with that fixed limit the installation

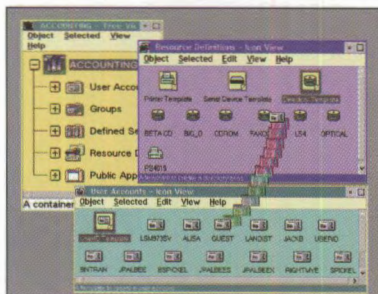
didn't work. Once again the problem stumped tech support—until a senior technician told Alex to copy Disk One and edit out some lines having to do with SCSI and PCI drivers in OS/2's default CONFIG.SYS.

This worked fine. So did Warp FixPack Five, which they downloaded and installed without incident. All was well for a while, but after several bootups Warp couldn't find the CD-ROM drive on the IBM Ambra. Dual boot to DOS/Windows reveals the drive works perfectly. As of this moment OS/2 Warp works but the CD-ROM doesn't. This is on an IBM Ambra machine. IBM is marketing Warp to home consumers. I think the moral is clear. ♦





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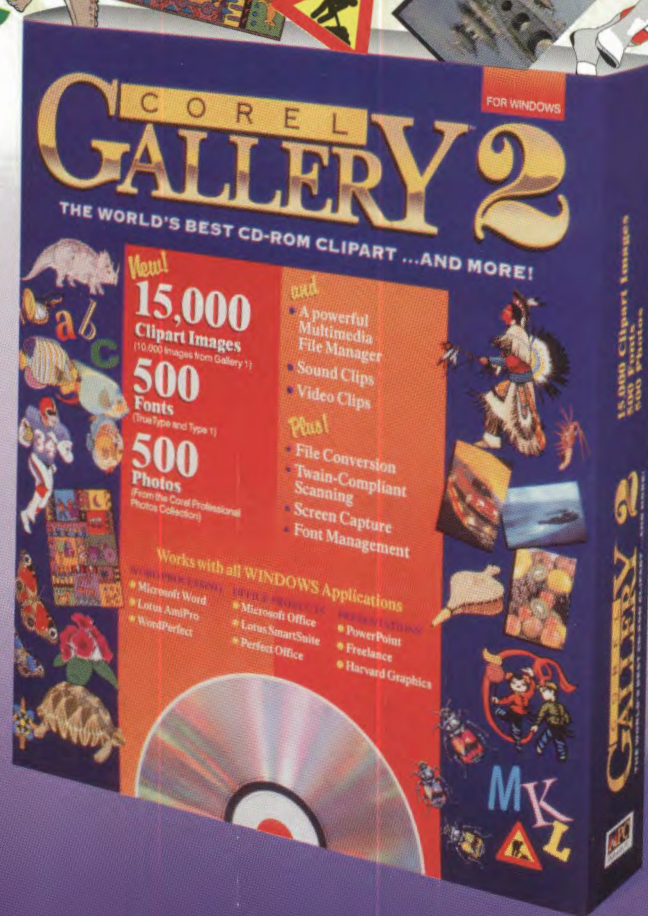
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